VOLUME 2 NUMBER 11 NOVEMBER 1995

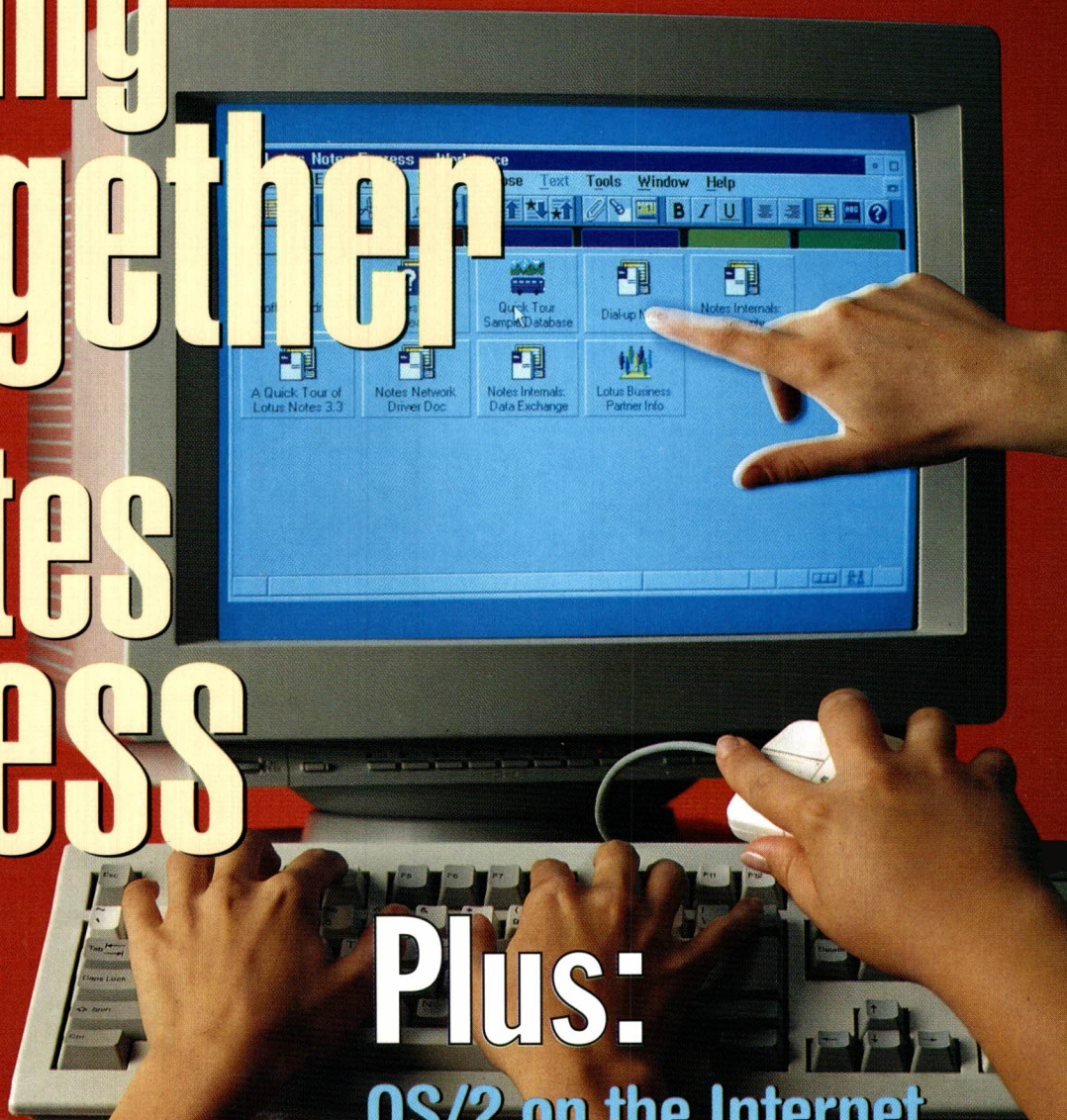
OS/2® MAGAZINE

Reviews

Back Again/2
DeScribe Voyager
UniMaint
Unite CD-R Master
XACT

Working Together With Notes Express

p. 29



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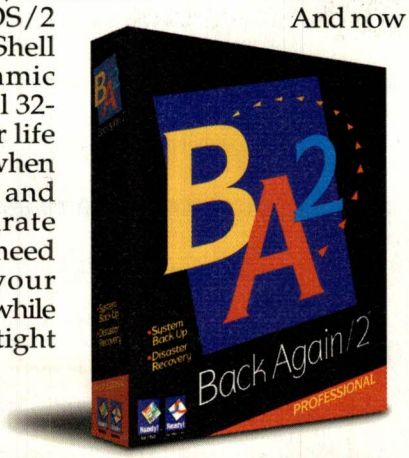

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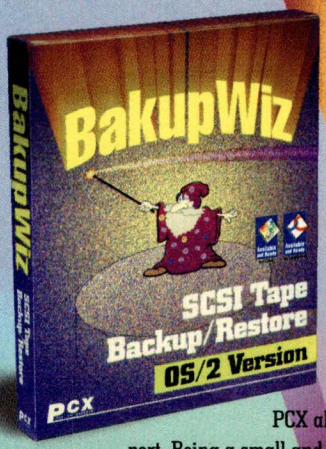

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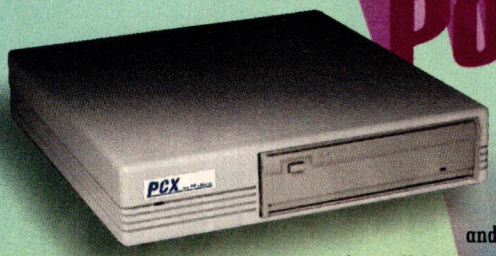

PortaTape™ is your complete portable tape backup solution for OS/2. Using high speed SCSI tape devices, the PortaTape line offers capacities ranging from 250 megabytes to 10 gigabytes. Offering backup speeds from 6 to over 18 megabytes per minute when using a high speed, bidirectional printer port, units in the PortaTape series are priced from $995.

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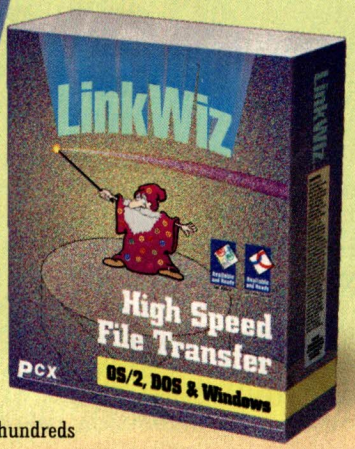

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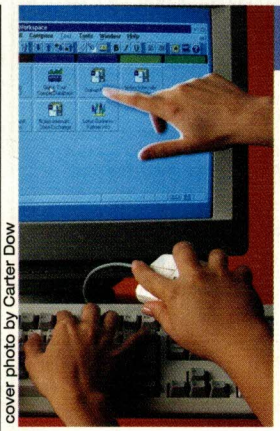

cover photo by Carter Dow

Cover Story

24 Climbing on the Notes Express

In OS/2 Warp Connect's BonusPak, you'll find a copy of Lotus Notes Express. Obviously IBM liked Notes, and believes in the groupware concept, enough to buy the company — but what can you do with this limited edition? There's more to Notes than meets the eye, so let's take a closer look at what groupware is, and how Express works. *By Brian Proffit*

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30 OS/2 on the Internet

It says so right on the box: OS/2 Warp is an "on-ramp to the information highway." Great — but once you're riding the fast lane, where should you go? Our local tour guide has checked out all the sites of special interest to OS/2 enthusiasts, and here's her travel report on World-Wide Web sites, ftp resources, and more. *By Vicci Conway*

38 Building an OS/2 BBS

OS/2 Magazine has published several articles discussing how to use OS/2 to dial into an electronic bulletin-board system — but what if you want to set up one of your own? Whether you're setting up a BBS for customer support, your local user group, or a hobby, you'll find OS/2 up to the task. *By Esther Schindler*

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Highlight with the mouse. Select "copy." Switch applications. Select "paste." Is moving data from one program to another really that simple? Not if you're transferring graphics data, because the OS/2 Clipboard often acts in unpredictable ways — even crashing the system. Here are the tricks and workarounds. *By Lenny Bailes*

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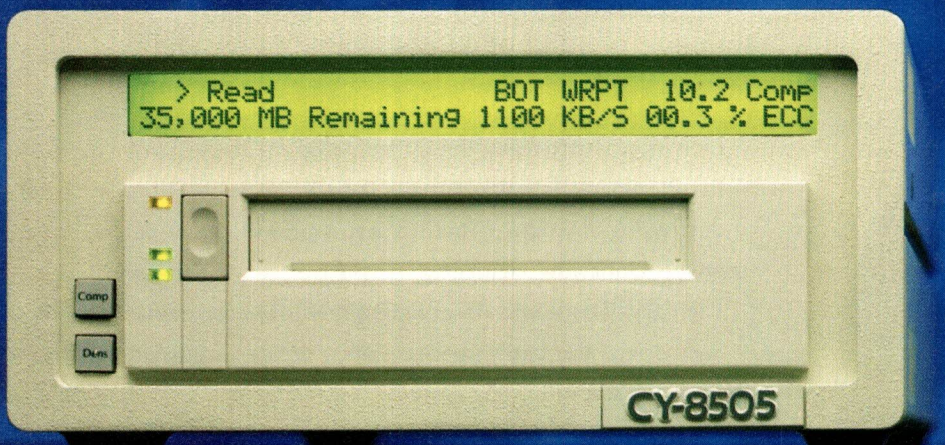

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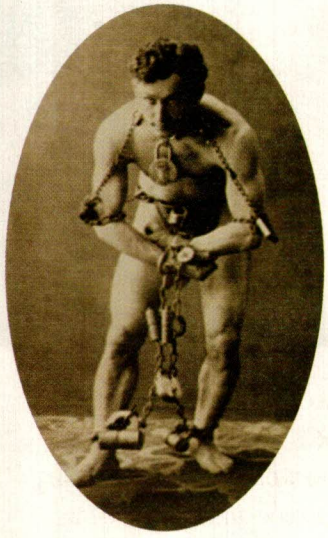

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—ANNE EHRENSHAFT
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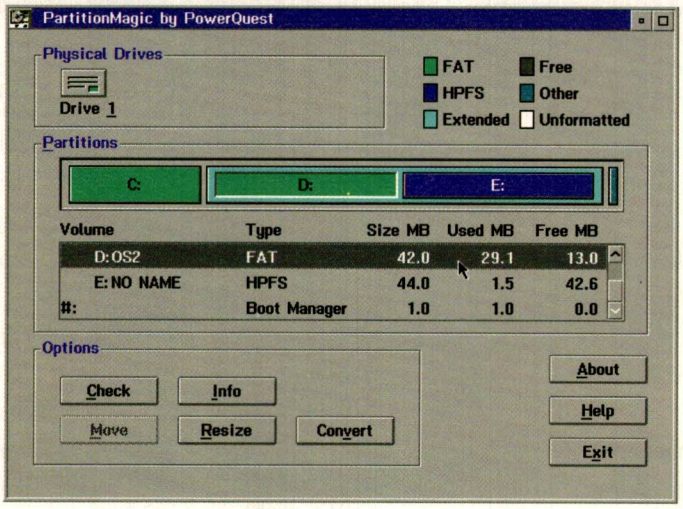

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Perspectives

Cup Holders

August 24, 1995: A day that'll go down in history as the date of Miller Freeman Inc.'s annual employee picnic. But wait, something else happened that day, too... oh, yes, Microsoft finally shipped the upgrade to its popular graphical DOS shell.

I've been working with Windows 95 on one of our lab PCs since its first "public" beta back in March, and it's indeed a drastic improvement over Microsoft's previous DOS shell, Windows 3.11. Of course, it offers nowhere near the robustness and quality of OS/2 Warp 3.0, and it's not even up to the standard of Windows NT 3.51. As OS/2 users, we have only one reason to consider taking a giant step backward to Windows 95: its compatibility with new Win32 applications (for example, CorelDraw 5.0 and Microsoft's Office 4.3 run under OS/2 Warp 3.0, but CorelDraw 6.0 and MS Office 95 won't).

How can we describe the differences between the two products? My analogy is that Windows 95 is like a subcompact economy car, and OS/2 Warp is more akin to a heavy American full-size sedan.

OS/2 Warp: Full-size six-adult car designed for big families and fleet sales. It has a big eight-cylinder engine that delivers plenty of power, large tires, smooth suspension so that you float down the highway, a trunk big enough to go camping in, and enough reliability that you can keep that car on the road 24 hours a day. Admittedly, the fit-and-finish isn't great, you get a lot of wind noise, the spare tire is hard to remove, paint colors are dull, it has only an AM/FM/cassette stereo, and no cup holders. But, once you've cruised from San Francisco to San Diego in the Warpmobile, you'll never settle for a lesser car.

Windows 95: A subcompact designed for the first-time buyer. Microsoft Motors installed a Nakamichi compact-disc stereo with 16 speakers, powered moon roof, leather seats, a digital dashboard, cup holders and lighted vanity mirrors for all four passengers, trendy colors, and even a rear spoiler. Sure, the 2.2-liter engine has little pickup, the transmission's clunky, the skinny tires and stiff shocks amplify every pothole, and the bucket seats feel cramped. That's okay, says the local Microsoft dealer, chances are the buyer will remember the gadgets and the TV commercials longer than the bumpy two-mile test drive. (Considering how many consumers were standing in line at midnight on August 24th to buy a product they didn't understand, the dealer's obviously right.)

Beauty might be only skin deep, but credit where credit's due. Microsoft's user-interface experts in Redmond paid more attention to the little things than our friends in Boca Raton. You might recall one of my pet peeves (discussed back in November 1994): the user-hostile **OS/2 !! SYS01475** message, which means you're trying to boot with a data disk in drive *a:*. You won't see that in Windows 95!

From the little animations when you copy and delete files, to cheery 3D icons, to the ease of changing screen resolutions, Windows 95's GUI is far more visually appealing (though less functional) than the Workplace Shell's uninspired industrial design.

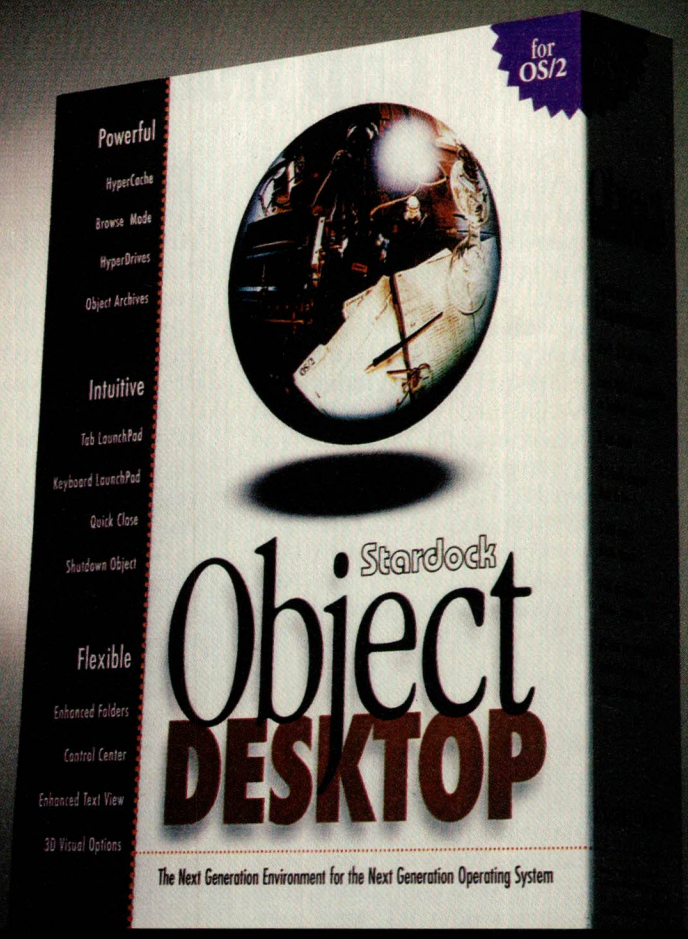
In one particular area, Microsoft beat IBM hands down: the on-line help. I'll be blunt: OS/2 Warp scores a D with its minimal, unattractive, jargon-laden, and nearly worthless on-line help. Most of my searches end in frustration—not only because the interface is clunky, but because the content's simply not there, or it's badly indexed, or it's phrased in Early Martian.

Microsoft scores an A. Because I loaded Windows 95 from their Developer Network CD-ROM, I have no printed documentation. Despite that, I've been able to dial into the Internet, fix a nasty printer problem, learn about briefcases, and tweak configuration settings using on-line help. (Hey, IBM: Not only will better on-line documentation appeal to consumers, but it might reduce your corporate customers' IS support costs.)

I particularly admire Windows 95's "Troubleshooters," which interactively walk through common problems and their solutions. Buttons launch an appropriate utility or bring you to the next suggestion. Add easy-to-read pages of tips and tricks, topical "How-Tos," and..., well, you get the idea. (Although the OS/2 Warp tutorial demonstrated some of the same creativity months earlier, IBM didn't follow through within OS/2 itself.)

Of course, great on-line help, like nifty cup holders, isn't sufficient reason to choose a product. Now that Windows 95's cold reality can be separated from its pre-launch hyperbole, IBM can convincingly demonstrate that where it counts—object-oriented design, stability, and performance—OS/2 Warp is the better choice. Let's all hope IBM seizes this opportunity....

Alan Zeichick
Editor-in-Chief



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Reader Service No. 6

Letters

"OS/2 is a headache and too complicated for most!"

Tips on the Tips

Dear Editor:

In the September article "103 Tricks and Tips" (p.35), I noticed that Table 1 is only correct for *reserve.sys* in the October 1994 version of OS/2 Warp. The second parameter for the */io* and */mem* switch is only decimal in this earlier version—all other versions of this driver have the second parameter in hexadecimal.

Also, the use of the <F1> key in the *cmd.exe* shell is one tip that I did not see in this article. The <F1> key can be used to recall command lines for previously used commands in a session. You can do this by typing a few of the first characters in that command. For example: suppose in the past twenty commands you typed several variations of one command and now you wish to repeat a previous command. Simply press the up arrow until you reach the command you are looking for. An even better way is to type a few characters of the line, that are identical to the ones you typed first, and press the <F1> key. If you have multiple command lines that begin with the same characters, press <F1> repeatedly. It will cycle through all the occurrences of those characters in a command. Note that you must have **KEYS=ON** in *config.sys* for this approach to work.

Eric Bentley

Are people preemptive or cooperative?

Dear Editor:

In the July *Letters*, Mark Bratcher responded to a letter that was written by Phillip Slater Jr., who wrote that he had never heard of anyone who had installed OS/2 smoothly or added hardware afterwards. He also commented that because he only does one thing at a time, why shouldn't his computer do the same?" Bratcher wrote that this was a poor analogy. People do multitask in real life, for example turning on a washing machine and watching television. Unfortunately, Bratcher's analogy is completely invalid. Human multitasking is comparable to Windows multitasking, which allows you to minimize a program and do something else at the same time—not simultaneously. People cannot drive a car, read a book, and talk on the phone simultaneously—people have enough difficulty rubbing their head and tummy at the same time. OS/2 is a headache and is too complicated for most people. It is too difficult to uninstall a program and recover from disaster. I, and most other people, can only do one thing at a time, so until another major step in evolution occurs, the Windows one-thing-at-a-time tasking will have to do.

Laurence Spector

Windows' multitasking is not an oxymoron

Dear Editor:

In the July *Letters*, Mark Bratcher makes some quite wild claims about Windows' inability to do two or more things at once—particularly where communications are concerned. Mr. Bratcher makes it quite clear that he knows very little about how to configure Windows properly to handle such things. This spread of misinformation about Windows seems quite prevalent among avid OS/2 users.

Recently, I picked up a challenge that was issued by an OS/2 user on FIDOnet. He said that he was sure that Windows could not download a 500k file with three DOS Windows open, each of which was doing a **dir/s** without croaking. I far surpassed his challenge. I started a 1.3MB (compressed file) download with a 26.4 modem connection, opened four DOS windows, each of which was doing a dir/s, copied a 700K file to a floppy and then back to the hard drive, and formatted a floppy—all while this download was occurring. The result was a perfect download at approximately 2,900 to 3,000 cps.

Somehow, I don't think I have to worry about Mr. Bratcher's example of sending a fax and not being able to do something else at the same time. I have no doubt that people like Mr. Bratcher have placed immediate blame on an OS when they have not spent much time optimizing it. If people like this are happy with OS/2 and want to defend it, fine. Defending something does not have to include bashing the opponent, especially when the bashing is almost totally in error.

Kevin Davis

Say it ain't so!

Dear Editor:

In the September *Letters*, Alexander Antoniades responded to Tom Lynch with the idea that it is more important for IBM to keep from stepping on the toes of prospective business users than provide current OS/2 users with good solid products. I am an example of why your idea does not make good business sense.

I used OS/2 at home. I even planned to buy and install it at work, even though our company standard is Windows. In addition, I was an emotional supporter of OS/2. But I couldn't get Ultimail Lite to work. I tried everything! I was born and raised on the Internet (so believe me when I say I tried everything) and I was truly angry when I had to resort to PMMail. Why should I have to pay for a mail program when one comes with the operating system? So, I never paid and with greater anger, because I was being publicly humiliated (PMMail puts a note into every message you send saying that you haven't registered) I started using Eudora. Imagine that, me, the OS/2 freak, using a Windows application.

Somewhere along the line, I managed to get a beta copy of Windows 95. Wanna know why I switched? Because I'm writing this letter to you with Microsoft Exchange. When I first got it, the only thing I found wrong with Exchange was that I couldn't use it with the Internet. I'm still not a big fan of Bill Gates, but Microsoft actually fixed Exchange so that I could use my provider instead of MSN with his software! I don't even have to use Eudora anymore. Inter-

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Reader Service No. 7

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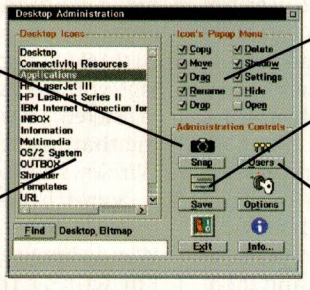
4. Save the desktop profile to a small disk file. All the icon restrictions and locations are stored away
5. Assign each user of your system their own desktop profile. As each user logs in with their own password, they get the desktop you assigned!



KidProof/2 is the ultimate answer to your frustrations with OS/2's Workplace Shell. KidProof/2 lets you create a customized desktop for each user of your system, and recreates that desktop for them each time they log on to the computer. Each user sees only the icons for the files and programs they are allowed to use, and no more. As the system administrator, you control user access and what is displayed on the screen.

But there is more to KidProof/2. Since the icons are built dynamically when the user logs on, you have direct control over restriction options. For example, you can keep an icon from being deleted or moved.

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Reader Service No. 8

net mail is seamless with my desktop. I can do everything I need to do without buying anything but PPP time.

When Windows 3.1 came out, I was so furious about their use of the term operating system, that I circulated a petition on the Internet asking people to help initiate a class-action suit against Microsoft for false advertising. I heard all kinds of excuses from people who never cracked a book about why it was one and how the definition of OS had changed. But that lie stuck in my craw for a long time. However, I observed that the battle between IBM and Microsoft was actually Windows versus Presentation Manager, and IBM was too stupid (unlikely), fearful (maybe), or uninterested (most likely, in my view) to properly narrow the focus.

The experience of using Windows 95 has earned Gates' company my respect. No, the interface doesn't have all the cool things that PM does, but that is actually an opportunity for IBM, because PM is a program that can be ported to Windows 95, just like Windows 95 can be ported to OS/2 (run in place of PM, not under it). Nor does it make sense to me that one should enter DOS rather than run it as a VDM as OS/2 does.

I'm not proselytizing for Microsoft. I long for the time that OS/2 becomes worthy of all of the arguments I had over it. It was easy when Windows was Max Headroom, but it has a full body now. I'd like to say that Windows 95 is for me, just a fling, but if OS/2 doesn't straighten up and act like the operating system it claims to be, I'll stay with Windows 95.

Juan Noyles
President, Site Builders

IBM's ability (or in your example, lack of ability) to deliver bug-free code was not the intent of my argument. My point was that if IBM doesn't provide clear indications of what its intentions are for the products in the Bonus Pak, third parties won't risk development dollars that might possibly compete with a free product. So, an imperfect free program (in this case UltiMail/2 Lite), can keep third parties, such as Qualcomm, the makers of Eudora, from entering this small market-place mainly because they can't be sure that UltiMail/2 Lite will always be as flawed as it is today. But since IBM has decided to replace Ultimail/2 with cc:mail, that particular argument 's mute.

—Alexander Antoniades

Lotus, OS/2, and the home

OS/2 AS A CONSUMER PLATFORM, AND THE ACQUISITION OF LOTUS. . .

BY ALEXANDER ANTONIADES

When you try to explain IBM's often baffling behavior, you must find the appropriate analogy. Mine is the parable of the elephant that is examined by three blind men. The first feels the elephant's trunk and says it is a snake, the second feels a leg and says it a tree, and the third feels the tail and says it is a bush.

IBM drops cryptic clues regarding the future of it's own products, but never fully reveals the beast. While this behavior has long frustrated the computer trade press, it has recently thrown the OS/2 world into a frenzy that caused even the most enthusiastic OS/2 supporter, to question his beliefs.

New York Times: "OS/2 is finished as a consumer platform"

In early August, IBM's commitment to OS/2 was brought into question by two damaging articles in the *New York Times*. Bad press for OS/2 is nothing new, but what made these articles different was that both of them contained negative quotes from IBM executives.

First, IBM CEO Lou Gerstner, in an article printed on August 1st with the headline "IBM Chief Concedes OS/2 has Lost Desktop War," stated that it was "too late to go after the desktop" and "we have to go on to the next thing." IBM claimed that the quotes were taken out of context, and judging by the transcript that the article was based on, the *Times* was indeed wrong. The actual quotes referred to the positioning of the newly acquired Lotus Notes—not to OS/2.

However, less reassuring was Mr. Gerstner's rebuttal note that reemphasized IBM's commitment to OS/2 as an enterprise platform. This response, though, cast doubts about IBM's continued investment in making OS/2 a consumer platform. His rebuttal read, "In today's edition of *The New York Times*, There was an article that misinterpreted statements regarding OS/2 I had made at a meeting with security analysts yesterday.

> **"I've used Windows 95, and it can't do THIS . . ."**

"My statements were regarding the fact that OS/2 is the market leader in enterprise and commercial accounts and that IBM's primary OS/2 focus is to maintain that leadership. The consumer and stand-alone desktop markets for OS/2 are growing but are secondary to our emphasis on robust line-of-business server applications for our enterprise customers.

"OS/2 is one of the cornerstones of IBM's software strategy. We remain committed to its success."

Even more damaging were the comments attributed to OS/2 evangelist David Barnes by columnist Peter Lewis in August 8th's newspaper Lewis' article quotes Barnes as saying he chose Windows 95 over OS/2 for his home machine, and later makes an analogy between OS/2 and Sony's ill-fated Beta-Max video tape format. The truth is that Barnes uses Windows 95 (as well as Windows NT, Linix, and SCO UNIX) for part of his job, evaluating competitive products. He flaunts this during his act "I've used Windows 95, and it can't do THIS..." However, he has privately denied making the quotes, and some of us in the OS/2 community doubt their authenticity. IBM, though, did not make a public comment regarding Barnes' quote, which left people wondering what the plan was for OS/2 in the home market.

IBM: Let the games begin

In contrast, IBM finally released the first beta of the OS/2 Entertainment Toolkit. It contains the utilities needed by programmers to create high-performance games on OS/2.

The Toolkit contains enhancements to OS/2 audio support, including a new real-time MIDI subsystem and the new Direct Audio Interface (DART), which allows multimedia developers to bypass OS/2 and access soundcards directly. These two enhancements will presumably set the stage for the rewriting of MMPM/2 in a future release of OS/2. In addition, the Toolkit will contain an enhanced version of OS/2 direct interface video extensions (DIVE), which supports a special full-screen mode and details on Argonaut's BRender 3D-rendering technology. For more information, check out the OS/2 Games home page at *http://www.ibmpsp.austin. com/os2games*. The Toolkit will also be included on Developer's Connection 8.

IBM also announced another consumer initiative, the Family FunPak for OS/2 Warp. This compilation CD-ROM will include a collection of home utilities and games, and will be bundled with IBM's Aptiva computers. The

products included are Stardock's Star Emperor (which uses the Galactic Civilizations game engine), Dux's SimCity Classic Limited, MSR's MicroLearn Game Pack 1, IBM's TD-Gammon (a backgammon simulator with advanced AI), Havoc, Rapid Assault (a DOS game), Magic Canvas (a Windows paint program for children), Dux's American Heritage Dictionary Concise Edition, MicroDock's Child Development Guide, Spitfire's In Charge at Home, and Reed Software's OS/2 Poker and Blackjack.

Finally, IBM announced the creation of a new consumer division to unite pieces of IBM's consumer offerings under a single marketing strategy. This division will include the Aptiva line of home computers, multimedia software, and on-line services.

The truth?

The reality appears to be that IBM still wants OS/2 to be seen as a consumer platform, the real questions that remain are how much money will be spent to do it, and how much of a priority it will be? The answer will come from the ads that IBM runs to counteract the release of Windows 95 and the start of more projects similar to the Family FunPak.

Lotus+IBM = Lotus

After the finalization of the Lotus/IBM merger, a number of questions remained. The fate of Notes was secure, but would IBM tie it into their own operating systems? Would IBM choose SmartSuite, or would the new IBM Star Office rule the day? IBM already had a mail and scheduling package, so what would happen to cc:Mail and Organizer? And, would these applications be IBM applications, or Lotus products?

The answers to these questions came in a press conference held by Jim Manzi, IBM vice president and former Lotus CEO, John M. Thompson, the head of IBM's Software Division, and other high-ranking IBM officials.

The results were basically this: everywhere an IBM product overlapped with the Lotus program, the Lotus program won, which means that the Time and Place, and Ultimedia Mail components of IBM Workgroup will be replaced by Lotus Organizer and cc:Mail, respectively. In addition, IBM has chosen SmartSuite as its official application suite, with the recently licensed StarOffice playing an unknown role in future events.

The good news for OS/2 is that an OS/2 version of the Lotus SmartSuite, comparable to the Windows 95 version, including Approach and Organizer, is expected on the shelves sometime in 1996. WordPro, the successor to AmiPro, should be in beta by the time you read this issue, although Lotus has not confirmed any of the shipping dates for the new SmartSuite for OS/2.

One point of interest in the release of the SmartSuite is that 1-2-3 for Windows will initially be included in the otherwise 32-bit Windows 95 release—apparently Lotus couldn't finish it in time. Just think of all the 32-bit code they would have had at their disposal if they made a 32-bit version for OS/2 beforehand.

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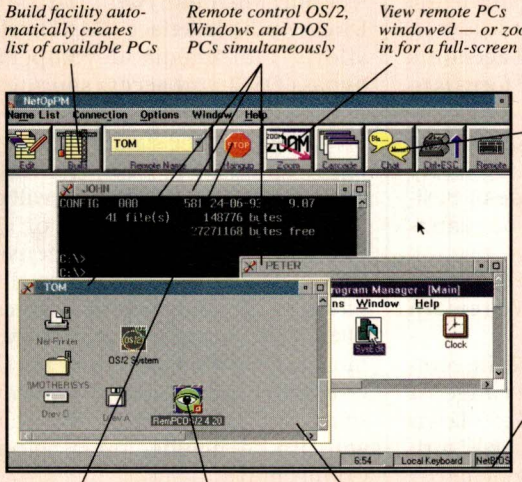
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Reader Service No. 9

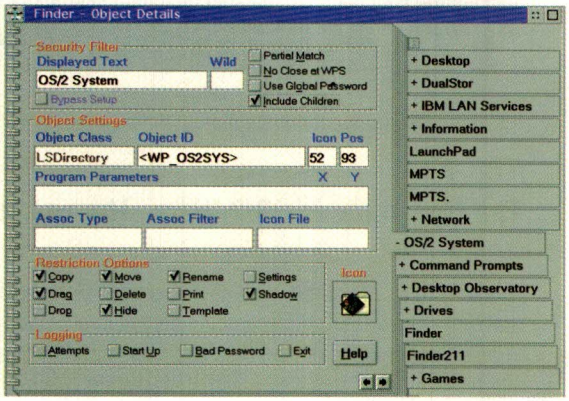
Late-Breaking Developments in the World of OS/2

Just Announced

Desktop Observatory 4.0

Better desktop security

Pinnacle Technologies is announcing a new version of Desktop Observatory. New features include a better security daemon that can easily control access to parts of the Internet, easy removal of programs from the task list, and centrally managed boot protection. Desktop Observatory is priced at $179. Upgrades from previous versions are available free of charge. Contact Pinnacle Technology at (800) 525-1650, (317) 581-6262, fax (317) 279-8039, or e-mail *ehenning@pinnacletech.com*.



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Local bus-enhanced IDE card

Arco Computer Products Inc. is introducing the combination IDE/port VLbus card, ACD-ROM. This card can connect as many as four ATAPI-enhanced IDE devices. It has two 16C550 UART-powered serial ports and a parallel port that supports the EPP, ECP, and SPP standards. The card retails for $94 and includes 32-bit OS/2 drivers. Contact Arco at (305) 925-2688 or fax (305) 925-2889.

READER SERVICE NO. 152

WatchDog for OS/2

D2 Security for OS/2 2.11

Fischer International is releasing an updated version of their OS/2 security product, Watchdog, which has a D2 rating from the National Computer Security Center. This new version extends support to OS/2 2.11 using IBM's new Security Enabling Services. New features include access control, data encryption, multiple-level user permissions, single sign-on, audit trails, and an expanded network interface. WatchDog is priced at $299. Contact Fischer International Systems at +941 436-2682, fax +941 436-2586, or you can e-mail them at *klinker@emc2-tao.fisc.com*.

READER SERVICE NO. 153

Remote Control/2 2.0

Better client/server monitoring

Compuware is releasing an update to their systems management product, Remote Control/2. This version includes such new features as event management, including monitoring software agents, tracking network error messages, group operations that organize nodes into a single group, and security control for tracking access and creating an audit trail. Remote Control/2 is priced at $5,000. Contact Compuware at (313) 737-7300 or fax (313) 737-2718.

READER SERVICE NO. 154

HyperAccess for OS/2 6.0

Terminal package goes GUI

Hilgraeve Inc. is releasing the full version of the HyperAccess program that is included with OS/2. This program includes a graphics viewer (HyperViewer), migration of HyperAccess Lite configuration data, better phone books, a new host mode, and a pre-configured list of over 1,000 BBSs. Contact Hilgraeve at (800) 826-2760, (313) 243-0576, fax (313) 243-0645, or e-mail *hilgraeve@mcimail.com*.

READER SERVICE NO. 155

NetOp 5.0

New remote-control utility

Markham Computer is releasing a new version of their utility that allows users to control a DOS/Windows or OS/2 PC that is connected by modem or LAN. Network protocols supported include NetBIOS, IPX/SPX, TCP/IP, APPC, and asynchronous communication. Other features include multiple passwords, access confirmation/notification for security and non-synchronous screen updates, and compression for performance. NetOP for OS/2 retails for $295. Contact Markham Computer at (407) 394-3994, fax (407) 394-3844, or e-mail *markham@gate.net*.

READER SERVICE NO. 156

Eight Million New Customers And Only Two Names To Remember.

Feeling like Brand X? It'll be a different story under the OS/2 WarpWare superbrand. With a major kickoff campaign soon to hit the retail outlets, now's the time to stake your claim with a Blue Orchard membership.

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OS/2 Warp is, of course, Version 3–the newest, fastest, most capable version of the most powerful desktop operating system ever developed. With a bold new graphic image to boot. And Blue Orchard? It's what you've always wanted: an aggressive IBM-supported national marketing co-op for independent OS/2 software vendors.

OS/2 Warp really gives users what they want. At the same time, Blue Orchard gives all you independent publishers exactly what you need to capitalize on OS/2 Warp's strengths: a consistent and positive image in the consumer's mind, and a high profile in the retail marketplace.

So when the eight million-plus excited OS/2 users come looking for **OS/2 WarpWare**, they'll make a beeline for the distinctive WarpWare display–and your Blue Orchard-approved products sitting front and center.

Blue Orchard will help you bring the highest-quality OS/2 products to market under the WarpWare superbrand. Give you substantial discounts on printing, packaging and professional services. Even help you identify new product opportunities.

But don't expect those attractive new boxes to sit on the shelf for long. We're beginning highly visible merchandising, promotions, retailer training and in-store demos in twenty major U.S. markets. And we've already established favorable partnerships with resellers, VARS, catalogers, and IBM.

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Just Announced

ManageIt

Check all home directories from LAN Server

Client Server Networking Inc. is introducing a new OS/2 LAN Server utility for accessing the home directories of users on the network. This utility allows administrators to generate reports, locate duplicate files, keep a billing register, and automatically notify users of the results. ManageIt is priced at $299. Phone or fax Client Server Networking at (203) 233-2951 or e-mail *102443.370@compuserve.com.*

READER SERVICE NO. 157

Trio Pro for Smalltalk

Smalltalk add-on adds GUI building

TechBridge Technology is releasing an add-on module for ParcPlace-Digitalk's Visual Smalltalk. Trio Pro for Smalltalk is a framework of more than 800 classes that are visually presented for building applications. Trio Pro for SmallTalk is priced at $450. Contact TechBridge at (416) 222-8998, fax (416) 222-0168, or e-mail them at *info@cont rad.com.*

READER SERVICE NO. 158

SAMS:Protect 1.0

New backup utility

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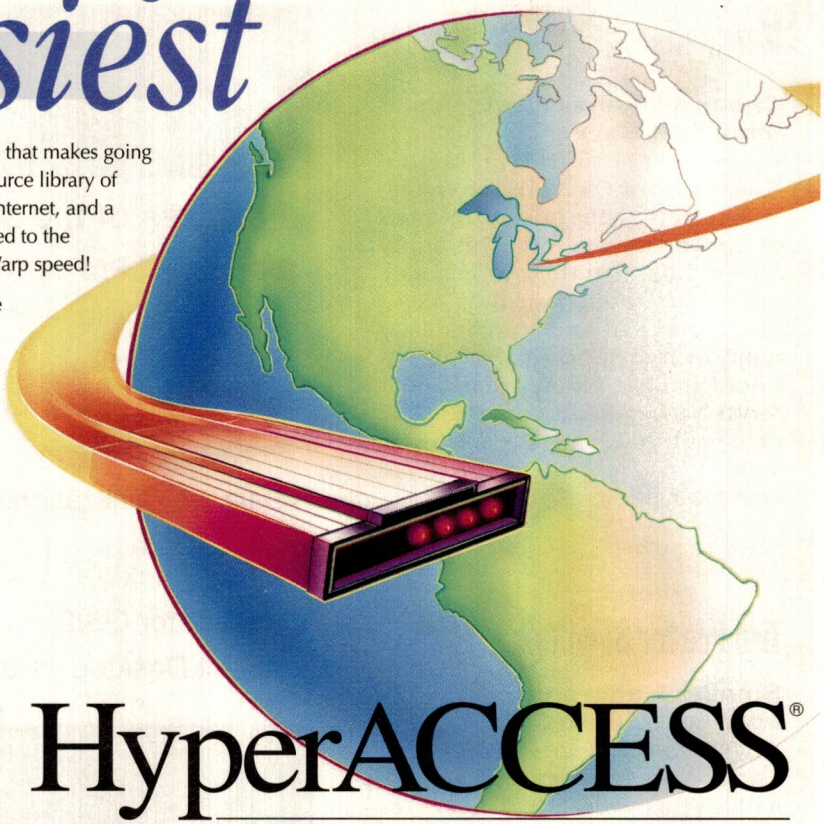

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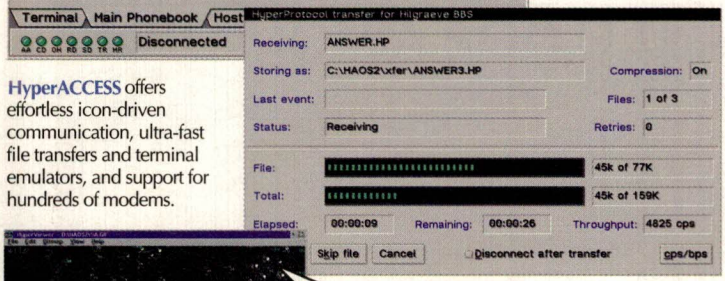

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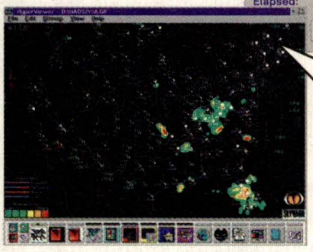

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OS/2: Open to Possibilities

IBM AND MICROSOFT TRADE PLACES FROM THE INITIAL RELEASES OF OS/2 AND WINDOWS 95

BY WILL F. ZACHMANN

The release (finally) of Windows 95 creates an outstanding opportunity for OS/2. If the right strategy is effectively executed, IBM's OS/2 Warp 3.0 has an excellent chance of making substantial gains in market share versus Windows 95 over the next 12 to 18 months. To see what those opportunities are, and how IBM can take advantage of them with OS/2, it is helpful, first, to review IBM's past strategy for OS/2, its changes over time, its prior strengths and weakness, and the new competitive environment that the release of Windows 95 creates.

When OS/2 was first announced jointly by IBM and Microsoft in April 1987—coincident with IBM's own announcement of the then new IBM PS/2 line of personal computers—IBM quite obviously had a not very well hidden agenda. They were attempting (with IBM OS/2 Extended Edition and the PS/2's Microchannel Architecture) to round up the cows that had strayed from the IBM proprietary architectures barn into the *de facto* open systems world that was created by the original IBM PC and XT—by then, dozens of vendors of compatible systems.

That strategy backfired badly. It was as unsuccessful as it was misguided in the first place. Not only did it not work, but it seriously impeded acceptance both of IBM's PS/2 line and OS/2. While a hardcore minority of loyal IBM corporate customers did buy into the semi-proprietary Microchannel architecture of the PS/2s and of IBM's original OS/2 Extended Edition (these systems included their own networking and database extensions), most did not or did so only on a very limited basis. OS/2 was not widely adopted in its 1.x versions and IBM's PS/2 line suffered major losses in market share to industry standard competitors.

To be sure, the semi-proprietary nature of OS/2 Extended Edition and its linkage to the even more proprietary Microchannel architecture of the IBM PS/2 line was not OS/2's only problem from 1987 to 1990. Sliding development schedules, limited backward compatibility of the OS/2 1.x DOS box, resource requirements that were substantially greater than was originally intended (and promised), and various other factors also inhibited acceptance. Microsoft's initially ambivalent approach to OS/2, which in the end turned into outright sabotage, didn't help much either. Nevertheless, the perception of OS/2 as IBM proprietary, and tied to the Microchannel architecture of the IBM PS/2 line, was a large albatross hanging from OS/2 1.x's neck.

What changed all this was Bill Gates' final decision to torpedo OS/2 entirely. According to G. Pascal Zachary's book *Showstopper* (p. 92), on August 20, 1990 (nearly a year before it was publicly admitted after the leak of a memo to Gates' executive staff in May 1991), the September 1990 "realignment of development responsibilities" for OS/2 between IBM and Microsoft was really a simple cover for what was in fact a complete split between IBM and Microsoft.

Ironically, one of the reasons Microsoft was unhappy about its relations with IBM was IBM's original inclination to attempt to regain a proprietary advantage with OS/2. Nevertheless, the effect of the split was that IBM abandoned its efforts to obtain proprietary advantage with OS/2 to link it to PS/2 and the Microchannel architecture in any way and, instead, IBM bent over backwards in an effort to make OS/2 as open as possible. In the meantime, Microsoft embarked upon a course, with Windows 3.1, Windows NT, and later Windows 95, that aimed to obtain exactly the proprietary advantage they criticized IBM for seeking.

In IBM's zeal to eliminate proprietary aspects of OS/2 and linkage to IBM personal computer systems, IBM went so far as to create entirely separate development and marketing organizations for OS/2 and their personal computers. That action gave Microsoft a fantastic opportunity to divide and conquer by simultaneously slamming IBM for OS/2's supposedly proprietary nature (despite the fact that IBM was doing everything they could to eliminate proprietary elements of OS/2), while simultaneously courting the IBM PC Company, effectively turning the IBM PC Company into a willing co-conspirator against OS/2.

To put it as kindly as possible, during the final years of John Aker's tenure as Chairman and CEO of IBM, he seriously underestimated the importance of their competitive struggle with Microsoft and gave Bill Gates ample opportunity to do maximum harm to IBM—and in the process, OS/2. Although IBM's PSP Division struggled valiantly to advance OS/2, IBM as a whole was not behind the product. OS/2 was actively undermined by the IBM PC Company and IBM's Power Personal Systems Division (PPSD). At the time, both behaved more like Microsoft allies on behalf of Windows 3.1 and Windows NT than supporters

of IBM's OS/2.

That has gradually but steadily changed since Lou Gerstner replaced Akers as IBM chairman and CEO. PPSD's flirtations with Microsoft over Windows NT and PC Company's virtual alliance with Microsoft are over. IBM PC Company does offer Windows 95 on some models, consistent with IBM's overall policy to offer customers open choices, but OS/2 Warp 3.0 has clearly been made the primary operating system for IBM's Intel architecture personal computers. Similarly, NT is an option for IBM's PowerPC systems, but AIX and OS/2 are now the default options for the future.

One of the most remarkable things about OS/2 is how well it did since 1991 despite lukewarm support (at best) from IBM as a whole and virtual sabotage by the PC Company and PPSD. Now that IBM is solidly behind OS/2 and the anti-OS/2 factions within IBM are being brought into line with broader corporate interests, Microsoft faces a far more formidable foe.

Today, Microsoft is more vulnerable than ever. Windows 95 isn't likely to fall flat on its face, but it won't live up to the hype either. It is no more than a transitional bait-and-switch place holder for Windows NT. It does fundamentally nothing of consequence that OS/2 hasn't long done better and it has resource requirements that are equal to if not greater than OS/2's. Windows 95, like Windows NT two years ago, was a far more formidable competitor to OS/2 Warp 3.0 before it shipped than after.

Microsoft's Goldilocks-like dilemma between Windows 95's "too soft" (and so forth), and Windows NT's "too hard" (etc.), gives IBM a fantastic opportunity to sell OS/2 as "just right" for serious users. Like Windows NT, OS/2 Warp is a true 32-bit fully preemptive multithreaded multitasking industrial-strength operating system—Windows 95 isn't. It is merely an ersatz version of the promises made for it. Yet OS/2's resource requirements are no greater than Windows 95's and considerably less than Windows NT's. OS/2 provides backward compatibility for existing DOS and Windows applications that are at least as good as Windows 95's and much better than Windows NT's.

I expect OS/2 to continue to make steady substantial gains in market share versus Microsoft's Windows everywhere. Solid commitment to OS/2 by IBM combined with its fundamental strengths and Windows 95's weaknesses add up to major gains ahead for OS/2. If that was not so, Microsoft's Windows everywhere supporters and surrogates would not be working so hard to persuade everyone (obviously contrary to fact) that OS/2 is dead, hoping thereby to talk it to death. The fact is, they are very worried—and for very good reasons.

Will Zachmann, a well-known computer-industry analyst, is the founder and president of Canopus Research, based in Duxbury, Mass. He is also a former vice-president for corporate research of International Data Corp. You can reach him on CompuServe at 76004,3657, or on his popular CANOPUS forum.

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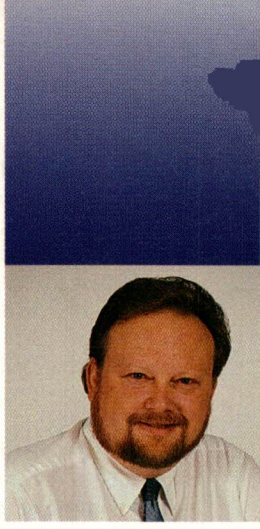
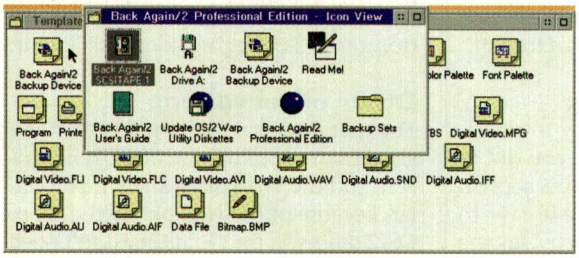


Backup Maintenance

BACK AGAIN/2 AND UNIMAINT

BY BRIAN PROFFIT



Back Again/2 Professional 3.0A

Look, we all know that we have to backup our data regularly, right? We also know that we have to use an OS/2 backup program, so that the extended attributes are saved. So, the question is, simply, which backup technique and software to use. In the past, it really wasn't clear which product was best. With Back Again/2 (BA/2), that might no longer be so.

Getting off to a fast start

Installation couldn't have been easier! BA/2 detected my tape drive and automatically created a backup object for it in its own folder. After interrogating the tape drive for its capabilities, BA/2 set the correct parameters for such things as block size and compression—without any effort on my part.

BA/2 is guided by the concept of *backup sets*. You can create multiple backup sets, each of which defines a set of drives and files to backup or exclude, the level of compression to use, and the drive to which you copy them. From then on, to do a specific type of backup ,you double-click on the icon that represents that backup set. BA/2 gets you started by automatically creating two backup sets—one to do a full backup (excluding the swap file) and another to do an incremental backup (only copying those files that have changed since the last backup) onto the first tape drive that is found during installation.

Many people will ever need to do after installation is double-click on the appropriate icon for all their backup needs. Those who want to fine-tune the backups, however, will find much flexibility in selecting files. They can be selected by drive, directory, file-name pattern (even across multiple drives), or direct file selection. You can also select files by the file's last written date. On HPFS systems, you can also select by creation and last access dates. BA/2 can also delete files that have been successfully backed up. You can periodically run a backup to archive all files that are more than two years old, and have them automatically deleted, to help clear the wasted space from your disk.

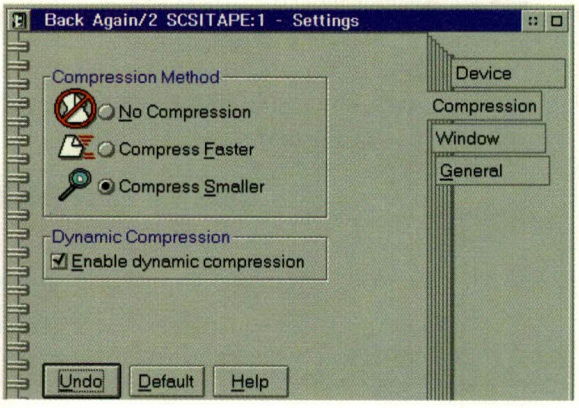
You have plenty of latitude in scheduling automatic unattended backups—down to setting them for every five minutes! BA/2 can automatically perform a verification of the tape data against the disk after a backup or at any time in a separate operation.

Of course, many types of backup devices exist. BA/2 supports more than SCSI-1 and SCSI-2 tape drives. You can backup to floppy disk (and a special floppy disk format is included that allows much faster transfer of data, although resulting floppy disks are only readable by BA/2), local hard drives, network drives that are attached through LAN Server, OS/2 Warp Connect, NetWare (including support for UNC file names), Bernoulli removable cartridge drives, magneto optical devices, floptical devices, and a new BA/2 version that supports EIDE tape drives. Quick File Access (QFA) is supported for those tape drives that can use that function. BA/2 can also use a drive's Error Correction Code (ECC).

In yet another example of good OS/2 design, you can tear off backup device templates to create a backup object for each of these devices on your system. You can then drag and drop other devices, directories, and files directly onto the backup device to initiate a copy.

Getting more on each tape

BA/2 can compress the data as it is being written to tape by using compression schemes that have been built into the tape drive or by using methods of its own. Dynamic compression adjustment is a neat technique that allows data to be transferred at maximum speed—even when it is being compressed. If you have a fast device and a slow computer (because compression takes some processor power), dynamic



compression will cause data compression to be temporarily disabled to keep the backup device streaming at its top speed. Of course, that means that the data wouldn't necessarily be compressed fully and would take more tape. But, as this feature is optional, the user has total control over how he chooses to balance the speed versus compression trade-off.

Another consideration is the amount of processor time required to perform the data compression. I noticed little effect on other applications in dynamic compression mode, largely due to the multithreaded model Computer Data Strategies used in the design of BA/2. At maximum compression, however, some slow-down occurred in other applications. However, the speed is adjustable, BA/2 lets you adjust the system priority of backup and restore operations. If backup speed is critical, run it at high priority. If you're running periodic automatic backups in the background, you can leave it at a lower priority level. You also have control over other performance factors, such as the size of the buffer the program uses and how many times it will try to open a file that is locked (in use by another application) before skipping it and going on to the next file.

Multithreading is also apparent when you first start a backup operation. BakupWiz, for example, scans the disk for the files to be backed up and then worries about positioning the tape. BA/2 does this procedure in separate threads so they can proceed simultaneously—a real time saver. BA/2 ran about 10% faster on my system than BakupWiz during actual data transfer, but the overlap of search functions made it feel much faster by cutting the time I had to wait.

Getting the data back

You have as much flexibility in selecting which files to restore as you did in making backups. A tape index is kept on the local hard disk to make it easy to determine which of your tapes has the information that is needed. If the index is lost, BA/2 automatically recovers it the next time the tape is used. In fact, the backup catalog and tape indexes that are stored by BA/2 make finding the desired information easier than any other package I've tried. BA/2 is more than a tool for backing up and restoring data, it works just as well for organizing those data archives. During a restore operation, you can tell BA/2 to overwrite existing files or overwrite files only if the backed-up version has a more recent date than the copy on disk. It will ask you what to do each time it finds a file on tape that is also on disk, or only copy files that don't exist on the disk. You can also restore files to a different path than the original—very handy on those occasions when you're repartitioning and changing your disk layout.

Other observations

The user interface is phenomenal. It is a good example of the use of GUIs in general, and the Workplace Shell in particular. Because of the well-planned design, OS/2 users will find that they don't need to spend much time in the manual or online help. However, command-line versions of the backup and restore programs are included for those times when you have problems with the operating system

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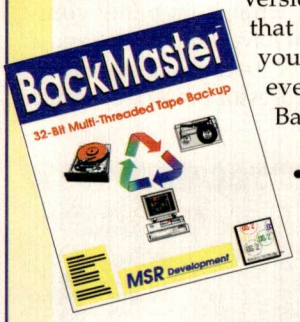

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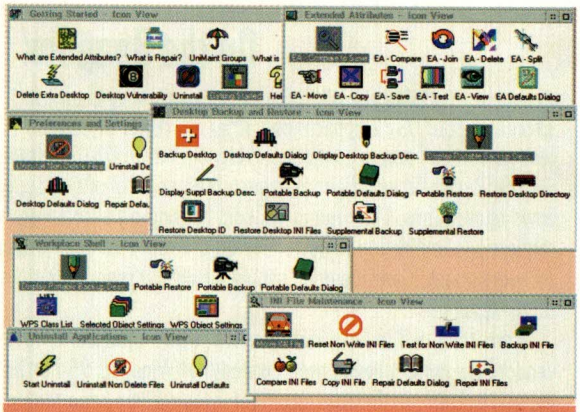
itself and need to work from maintenance mode or the installation disks. You can also use this facility to clone a system without having to install OS/2 on the target system first (although you must still run SYSINSTX to get OS/2 onto the drive's boot sector). A program is included that adds the stand-alone restore files to the OS/2 Warp 3.0 utility disks.

The technical support is the only real problem I have with this program. The CompuServe ID is apparently only checked by one person—and only when that person is in town. The BBS is checked more regularly, but they don't have a large technical support staff, so answers aren't as prompt as one would hope. The good news is that the program seems solid, so little support should be required. On the other hand, because of the wide variety of devices that are being supported, the potential for compatibility quirks that need to be worked out is greater.

Computer Data Strategies does manage to be responsive. There was a bug in restoring files to directories other than the original when this version was first released, and they have made a patch available free of charge.

Glee or flee

If you're using a more exotic backup device and you want to prevent future problems, call Computer Data Strategies first and get specific information on their support for that drive. Assuming that isn't a problem (and the list of supported devices is impressive), you should take a look at this product. Factoring in the user interface, speed, stability, and completeness, this application is the best OS/2 backup product I've seen. Even if you are only backing up to disk, you can benefit from BA/2.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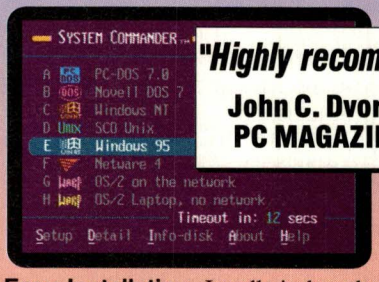

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On the Soapbox

Some of *OS/2 Magazine's* software reviewers have been criticized for being too negative in comments about OS/2 applications. After all, critics say, doesn't *OS/2 Magazine* want vendors to feel encouraged and to continue developing native OS/2 software?

OS/2 users have a right to expect their applications be superior (or at least as good as) Windows applications. I'm tired of vendors passing off second-rate software and mediocre Windows conversions, expecting reviewers to be grateful that their products run on OS/2. Questionable software doesn't become good simply because it runs in a native OS/2 window instead of a Win-OS/2 session.

I am delighted to have two excellent OS/2 products to review this month. I hope that many vendors are more relieved than excited that Windows 95 has finally shipped, and soon start seeing some return on their development investment. I hope they will now turn their attention to the millions of copies of OS/2 Warp 3.0 in the market and give us the quality we have a right to expect—because that's what we're looking for. —*Brian Proffit*

ucts of OS/2.

- The power that is provided by extended attributes also means that much customization information is hidden in invisible areas, which are not normally accessible by the user. And, if these hidden attributes are lost, so is that customization information.
- A great deal of customization information is contained in application and system *.ini* files. Unlike Windows, IBM chose to make OS/2 *.ini* files binary, which means that you can't modify them with your normal text editor. And, because these files tend to be open much of the time, problems, such as power failures that bring down the system without a proper shutdown, can corrupt those *.ini* files and cause a variety of problems.
- The Workplace Shell is an object-oriented interface, which means that the objects you see on the screen are part of object classes. And, as you've seen in the Settings Notebook, they each have their own settings. Much of the underlying mechanics, such as assignment of object classes, are unavailable to the typical user.
- Few OS/2 application vendors include programs to uninstall their products. But, during installation, they put their fingers into many areas of your system configuration. If you decide to remove an application, simply deleting its files often leaves behind many other hidden pieces, which will then be orphaned and wasting your resources.

The solution

The key areas that are addressed by UniMaint are:

- Extended Attribute manipulation and saving
- Desktop Object manipulation—classes, settings, and so on
- Desktop Configuration backup and restore
- System and Application *.ini* file manipulation
- Application installation tracking and deinstallation

The figure on the next page shows the incredible variety of tools that have been included to address those five areas. If the plentitude of those tools seems a little overpowering, you can access all of these functions through the pull-down menus in the main UniMaint window.

One of the nice touches that UniMaint offers is the background information for the user, which SofTouch spent much time to provide. This information helps the casual user to understand what extended attributes are, what *.ini* files are, and how these things and your desktop configuration information are stored on your disk. That helps you to understand what you're doing as you use UniMaint to take control of items that are critical to system operation. UniMaint gives you control over them, which is critical to system operation.

The background information sets the tone for the breadth of the manual that comes with UniMaint. SofTouch Systems did a great job there, as well. Be warned, though, the manual assumes that if you reach down into the deeper areas of the system, you already have some idea of what you'll find there. Explaining extended attributes is one thing, but a tutorial on the message-based architecture of the Presentation Manager and the Workplace Shell class hierarchy is beyond the scope of this manual. There may well be parts of the book that you don't understand. That's okay, just don't use those parts of the product. The product has plenty of valuable aspects that you can understand and use to great advantage.

Such as?

Look at the figure on the next page. It shows a view of some of the entries in the system initialization file, *os2sys.ini*. Between this file and the user initialization file, *os2.ini*, the applications you install place much information on your disk that doesn't go away when you erase the application. If you remove a program, UniMaint lets you examine the initialization files and remove any references that a program might have put in them. More daring users can even try to directly modify the initialization information for existing applications in the lower half of the window. Be aware, however, that applications often have embedded assumptions about the length of the data contained there, so it's dangerous to try to make an entry longer or shorter.

Better still, UniMaint can make the uninstall process even easier for applications you add after installing UniMaint. When you install new applications, UniMaint will track all of the changes that are made to your system. If you decide to remove the program later, a click of the mouse instructs UniMaint to remove all references to that program—including the ones you didn't even know existed.

Of course, it is always best to have a good backup before making any changes to these system files. I'm not referring to a complete system backup; the changes UniMaint makes are specific to the desktop configuration. It is notable, then, that UniMaint provides an easy way to backup all the components of that configuration before making any modifications. As I mentioned earlier, it's a good idea to keep a desktop backup, because these files are subject to corruption.

A desktop that travels?

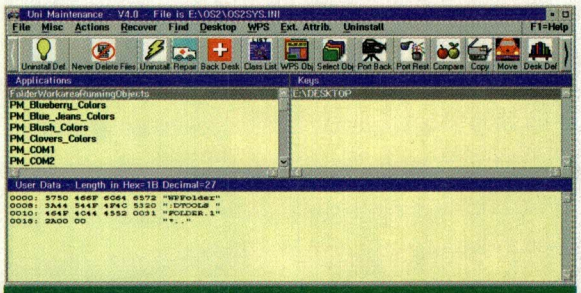
Several good Workplace Shell Desktop backup programs exist. Most of them, however, are designed for use on only one machine (for a review of several, see "Preserving the Desktop, November 1994, p.44). UniMaint allows you to backup your desktop configuration in a way that is portable to other machines. If you need to make a mirror image of your setup on another machine, this ability can save hours of recreating, repositioning, and recoloring the objects on your desktop.

By the way, SofTouch Systems also included ShiftRun, a public domain program that greatly simplifies life on those occasions when you need to run OS/2 without the Workplace Shell. This program allows you to boot directly to a command prompt without having to do so (slo-o-o-owly) from the installation disks.

Glee or flee

Pulling all of this power together, SofTouch has built wonderfully upon the IniMaint base created by Carry Associates. All OS/2 users can get some value from the program, and it is almost a requirement for serious users and IS departments.

Brian Proffit was part of IBM's OS/2 team and left IBM to become the director of PC Week's Corporate Labs. He is now the president of Visionary Research, senior contributing editor for OS/2 Magazine, and solutions advisor to PC Magazine. He can be reached at Internet 75300. 1466@compuserve.com.


Uni Maintenance - V4.0 - File is E:\OS2\OS2SYS.INI
File Misc Actions Recover Find Desktop WPS Ext. Attrib. Uninstall F1=Help
Uninstall Del Never Delete Files Uninstall Repair Back Desk Class List WPS Obj Select Obj Port Back Port Rest Compare Copy Move Desk Def
Applications
Keys
FolderWorkareaRunningObjects
E:\DESKTOP
PM_Blueberry_Colors
PM_Blue_Jeans_Colors
PM_Blush_Colors
PM_Clovers_Colors
PM_COM1
PM_COM2
User Data - Length in Hex:1B Decimal:27
The main UniMaint window provides access to dozens of tools.

RESOURCES

Back Again/2 Personal ($49)

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Computer Data Strategies Inc.
P.O. Box 25123
Woodbury, MN 55125
(612)730-4156
Fax: (612)730-4161
BBS:(612)730-4157
E-mail: 73662.3011@compuserve.com
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UniMaint($79.95)

SofTouch Systems Inc.
1300 S. Meridian, Ste. 600
Oklahoma City, OK 73108-1751
(800)944-3028
(405)947-8085
Fax:(405)-632-6537
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❑ 102 Systems Integrator/ Network Integrator
❑ 103 Independent Consultant
❑ 104 In-house Corporate Integrator
❑ 105 Manufacturer who Resells
❑ 106 Distributor
❑ 149 Other_____ (please specify)

3 Which best describes your job title? (check only one)
❑ 151 Executive Management (Chairman CEO/ President/Owner/ Principal Partner)
❑ 152 General Management (VP Finance/Operations/ Department Head/ General Manager/ Purchasing)
❑ 153 Technical Management (VP Technical Services/ Chief Technical Officer/ Engineering Director)
❑ 154 Technical Staff (Systems Analyst/ Systems Engineer)
❑ 155 Sales Management (VP Sales/Sales Director)
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Lotus Notes Express - Workspace
File Edit View Mail Compose Text Tools Window Help
Proffit's Address Book
Notes Help Release 3
Quick Tour Sample Database
Dial-up
Notes Internals:
A Quick Tour of Lotus Notes 3.3
Notes Network Driver Doc
Notes Internals: Data Exchange
Lotus Business Partner Info

The first train is coming into the groupware station. By Brian Proffit

Climbing on the Notes Express

With the success of OS/2 Warp's BonusPak, IBM decided to add a new application to OS/2 Warp Connect. Lotus Notes Express was a good choice, as a way of showing off the connectivity in OS/2 Warp Connect and as a way of showcasing a flagship product of IBM's latest acquisition, Lotus Development Corp.

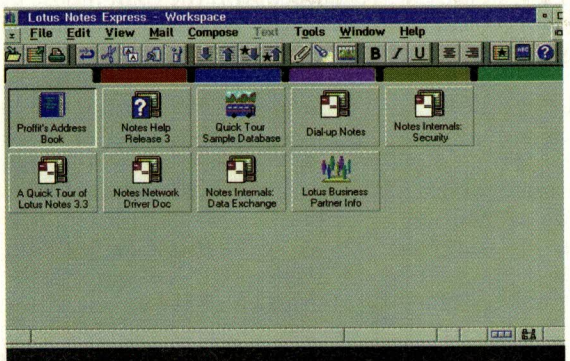
Lotus Notes Express - Workspace
File Edit View Mail Compose Text Tools Window Help
Profit's Address Book
Notes Help Release 3
Quick Tour Sample Database
Dial-up Notes
Notes Internals: Security
A Quick Tour of Lotus Notes 3.3
Notes Network Driver Doc
Notes Internals: Data Exchange
Lotus Business Partner Info

Figure 1: The main Notes Express menu offers access to a variety of Notes services.

When Lotus first released Notes, a few years ago, it was clear that this product defined a new type of application. The industry (with some prodding from Lotus) has settled on the term groupware, and Notes still leads the pack in this application category. But, what exactly is groupware?

A simplistic definition might be that groupware is software that promotes the organized sharing of information in a useful way by people in a workgroup. This definition differs from a local-area network, in that a LAN enables the sharing of information, but doesn't help much with the organization and pre-

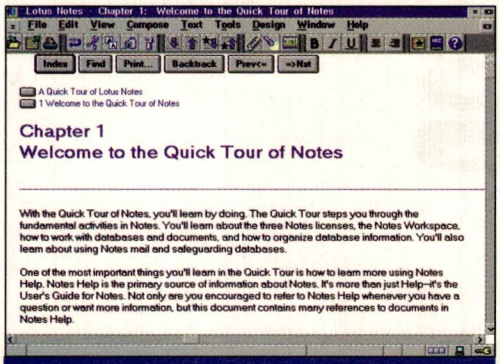
Lotus Notes - Chapter 1: Welcome to the Quick Tour of Notes
File Edit View Compose Text Tools Design Window Help
Index Find Print... Backtrack Prev<- ->Next
A Quick Tour of Lotus Notes
1 Welcome to the Quick Tour of Notes
Chapter 1
Welcome to the Quick Tour of Notes
With the Quick Tour of Notes, you'll learn by doing. The Quick Tour steps you through the fundamental activities in Notes. You'll learn about the three Notes licenses, the Notes Workspace, how to work with databases and documents, and how to organize database information. You'll also learn about using Notes mail and safeguarding databases.
One of the most important things you'll learn in the Quick Tour is how to learn more using Notes Help. Notes Help is the primary source of information about Notes. It's more than just Help--it's the User's Guide for Notes. Not only are you encouraged to refer to Notes Help whenever you have a question or want more information, but this document contains many references to documents in Notes Help.

Figure 2: Document applications can include hyperlinks to other parts of the reference material.

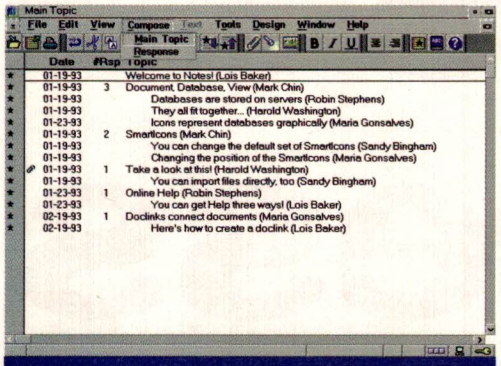
Main Topic
File Edit View Compose Text Tools Design Window Help
Main Topic
Response
Date #Rsp Topic
01-19-93 Welcome to Notes! (Lois Baker)
01-19-93 3 Document, Database, View (Mark Chin)
01-19-93 Databases are stored on servers (Robin Stephens)
01-19-93 They all fit together... (Harold Washington)
01-23-93 Icons represent databases graphically (Maria Gonsalves)
01-19-93 2 Smarticons (Mark Chin)
01-19-93 You can change the default set of Smarticons (Sandy Bingham)
01-19-93 Changing the position of the Smarticons (Maria Gonsalves)
01-19-93 1 Take a look at this! (Harold Washington)
01-19-93 You can import files directly, too (Sandy Bingham)
01-23-93 1 Online Help (Robin Stephens)
01-23-93 You can get Help three ways! (Lois Baker)
02-19-93 1 Doclinks connect documents (Maria Gonsalves)
02-19-93 Here's how to create a doclink (Lois Baker)

Figure 3: A discussion database allows virtual meetings for the free exchange of ideas.

If You Think Notes Express Is Good...

Notes Express is the entry-level version great for getting you started, but it limits the number of applications and templates that you can work with. The next level up is Lotus Notes Desktop, a client version that gives you the ability to use all of the Notes application types (more than 25), including custom databases your organization might have developed. Notes Desktop also adds the work flow and routing functions that let you define the path through your organization of, say, a travel request. When a person creates such a request, Notes automatically routes it to the right people, and when they electronically sign it, it is routed for the next approval with mail sent to the originator notifying them of the approvals as they are given.

The full version of Lotus Notes adds the database development and system administration tools. All three of these versions allow users to share documents and mail through connection with a computer running Lotus Notes Server.

sentation of that information. Groupware products exist on top of networks and help manipulate and present the data. In fact, many people consider database servers to be a form of groupware.

Getting started

Notes Express, as included in the BonusPak, is essentially a limited-function version of the standard Notes 3.30 client software that is already in use in thousands of corporate offices. Lotus estimates that more than 1.5 million people are currently using some version of Notes.

Despite its being a subset of Notes 3.30, Notes Express has plenty of features to get you started sharing Notes documents with other people who are connected to a system running Notes Server, whether over a network or through a dial-up modem connection. (Notes Express requires that Notes Servers be upgraded to at least level 3.30, so, organizations that are using prior versions will have to upgrade their servers.) If you don't have access to a Notes Server, you can use Notes Express as an easy-to-use stand-alone personal database.

Notes Express can take more than 50MB of disk space if you install all of it. But you can save approximately 20MB just by leaving out Lotus' catalog of their Business Partners. Installation of the help database and documentation databases is more important with Notes Express than with the shrink-wrapped version of Notes, because no printed documentation, other than installation instructions, is included. Because these instructions make up the only manual you will have, it doesn't pay to skimp on the space up front.

You should consider 33MB the minimum to get started. You can clear off at least 10MB of that after you've gone through the Quick Tour, the Tutorial databases, and the Example files (see Figure 1). Don't bother installing the Guided Tour, though, Lotus didn't include all of it with the Notes Express CD, and the information that is left is of minimal value for the amount of space it takes. You'll get all you need from the other resources. (And, if you didn't install Win-OS/2 support, this Windows applications won't run anyway!)

A bundle of goodies

Notes Express comes with six application templates for reference document libraries, news and shared discussion databases, service request and customer tracking, and a company phone book. Let's use the Customer Tracking database template to take a closer look at how Notes works.

Click on File/New Database to create a new Notes database. You will notice that Notes lists many more template types than the six listed above. It's just a tease. If you try to use them, you get a message that tells you that those types aren't authorized for Notes Express. You need Notes Desktop or the full version to use them. Let's select the Customer Tracking template and assign a name to your new database. Notice that a checkbox allows you to specify if this database should "Inherit future design changes." The use of these templates allows you to make sweeping updates. If you change the template, you can have the change automatically propagated to all databases that use that template.

When you open the database for the first time, Notes gives you a description of the database type. This description is called the "About" document, and each database has one. Press <Esc> or double-click with the right mouse button to close this document and go to the main view of the database, which shows activity by company name. Because we haven't entered any companies or contacts yet, it should be blank. We'll start by entering information about a company with which we do business. Click on Compose/Customer Profile to enter a new company (see Figure 4).

Once you have entered the basic company information, close this document (remember that in Notes, documents are closed by pressing <Esc> or double-clicking the right mouse button). The company now appears in the

main view of the database. Let's enter the name of the specific person within that company that we usually contact. Make sure the company name is highlighted and click on Compose /Contact Profile. Notice that the phone and address information is inserted automatically from the company record, so you only need to enter things that are specific to the person (see Figure 5).When you close that record, the person appears in the database view, indented within their company.

Now, let's enter an action item related to this customer. Click on Compose/ Activity/ Action Item (see Figure 6). Notice that as you enter the action item, you can assign it to someone else and have Notes automatically e-mail it to the person who has the action to perform. The Notes Server can route it to other Notes or Lotus cc:Mail users. If they're on the network, they will receive the note immediately. Otherwise, they will see the item as soon as they logon, whether through the network, or via dial-up connection using a modem. Close this action item and you will

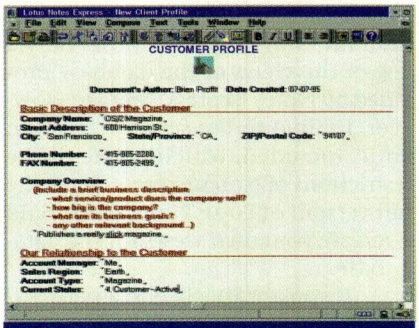

Figure 4: To track a customer, you first enter the basic client information.

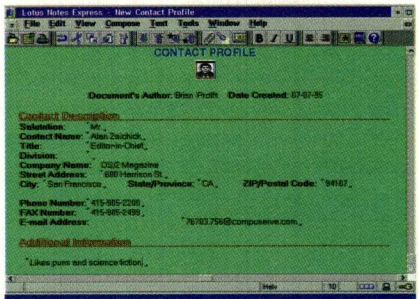

Figure 5: Next, enter the information of your contacts within that company.

The six Notes Express templates...

Reference Document Library is an application that was designed to aid in organizing and disseminating such things as product catalogs, procedure manuals, and technical documentation. This application is the same type that is used for the documentation that is included with Notes Express (see Figure 2). You can include graphics for illustrations and provide navigation to related material through doclinks—hypertext links to other parts of the reference material, even in other databases.

News Databases are a convenient method of distributing news and announcements. In addition to their use for spreading internal announcements, corporate Notes Servers are frequently connected to news wire services, so that appropriate industry information can be made available to all Notes users—right at their desk.

Shared Discussion Databases are similar to the format that is used on many bulletin board systems (BBS). Documents can be organized by topic, allowing people to respond to individual comments and create new topics on their own. This feature is a great way for members of a workgroup to comment on ideas, attach their suggestions, and come to a consensus—even if they're on different continents and never see or speak to each other. The paper clip beside one of the entries in Figure 3 shows that a file is attached to the note. If the file is associated with an OS/2 program, the program can be launched directly by double-clicking on the file's icon within the Notes document. You could also simply import the contents of a file, such as a spreadsheet, a word processing document, or a piece of clip art, directly into your Notes document.

Service Request Tracking helps to identify workload needs and point out problems areas by showing the topics that generate the highest volume of assistance calls, whether to the support line for your company's products or to the internal MIS department of your organization.

Company Phone Book presents an easy way to store name, location, and contact information. This feature works just as well for customers and clients as it does for internal information.

Customer Tracking Database is even better for customers and clients. This database adds the ability to track calls, meetings, correspondence, and action items.

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return to the main view of the database.

Finding your data

The main view shows the new company, the contact, and the action items that you have entered. But, you can look at the information in more than one way. Figure 7 shows only a few of the views of the database provided by Notes Express. You are, however, limited to the seven views that Lotus included, which is one of the restrictions of Notes Express. With the full version of Lotus Notes, you could create your own views for the database.

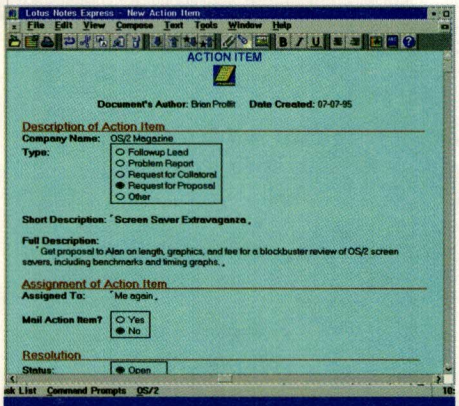


Figure 6: Entering and tracking action items is quite straightforward.

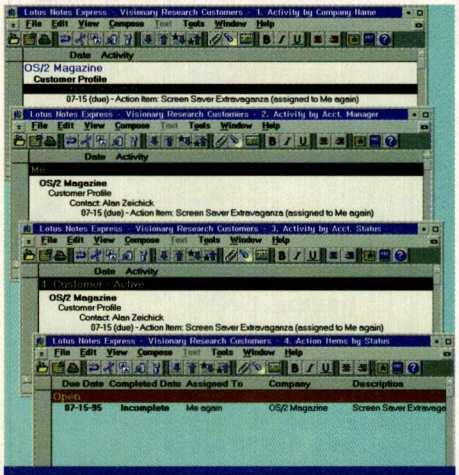
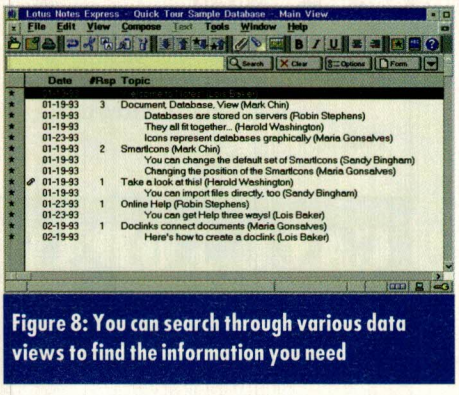

Lotus Notes Express - Visionary Research Customers - 1. Activity by Company Name
Lotus Notes Express - Visionary Research Customers - 2. Activity by Acct. Manager
Lotus Notes Express - Visionary Research Customers - 3. Activity by Acct. Status
Lotus Notes Express - Visionary Research Customers - 4. Action Items by Status
Due Date Completed Date Assigned To Company Description
07-15-95 Incomplete Me again OS/2 Magazine Screen Saver Extravaga

Figure 7: You can view the information in many different ways


Lotus Notes Express - Quick Tour Sample Database - Main View
File Edit View Compose Text Tools Window Help
Date #Resp Topic
01-19-93 3 Document, Database, View (Mark Chin)
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01-23-93 You can get Help three ways! (Lois Baker)
02-19-93 1 Doclinks connect documents (Maria Gonsalves)
02-19-93 Here's how to create a doclink (Lois Baker)

Figure 8: You can search through various data views to find the information you need

If you are attached to a network, you might find that the views change as other users enter new action items against customers. Notes keeps track of which documents you have and haven't read. In fact, the asterisked arrow tools on the button bar were created to make it easy for you to move back and forth through the documents you haven't yet seen.

To make it easier to find the precise information you need, Notes allows you to prepare an index of all of your documents so you can do fast full-text searches across all entries in a database. Once a database has been indexed, you can activate a new part of the window, called the Search Bar. In Figure 8, you can see an activated Search Bar. Simply type the desired search word in the entry field and click on Search. Notes responds with a new view of the database that lists the documents that contain the desired word. Even better, you have the option of telling Notes to find variants of the entered word. For example, if your search word was *talk*, a variant search would also find *talked* and *talking*. Best of all, Notes displays the results sorted so that the documents that contain the search word most frequently appear at the top. That can help pop the needed information to the top of the list. You also have the option of instructing Notes to sort the matching documents by date.

Getting permission

Excellent security allows you to control access rights very specifically. Seven different levels of security exist, and you can control the access level of every potential user of the database. That can be a lot of people, depending on your Notes Server. Large organizations are likely to have a Notes Server at each physical location (building or city), which keeps shadow copies of the databases updated via Notes' Replicate function.

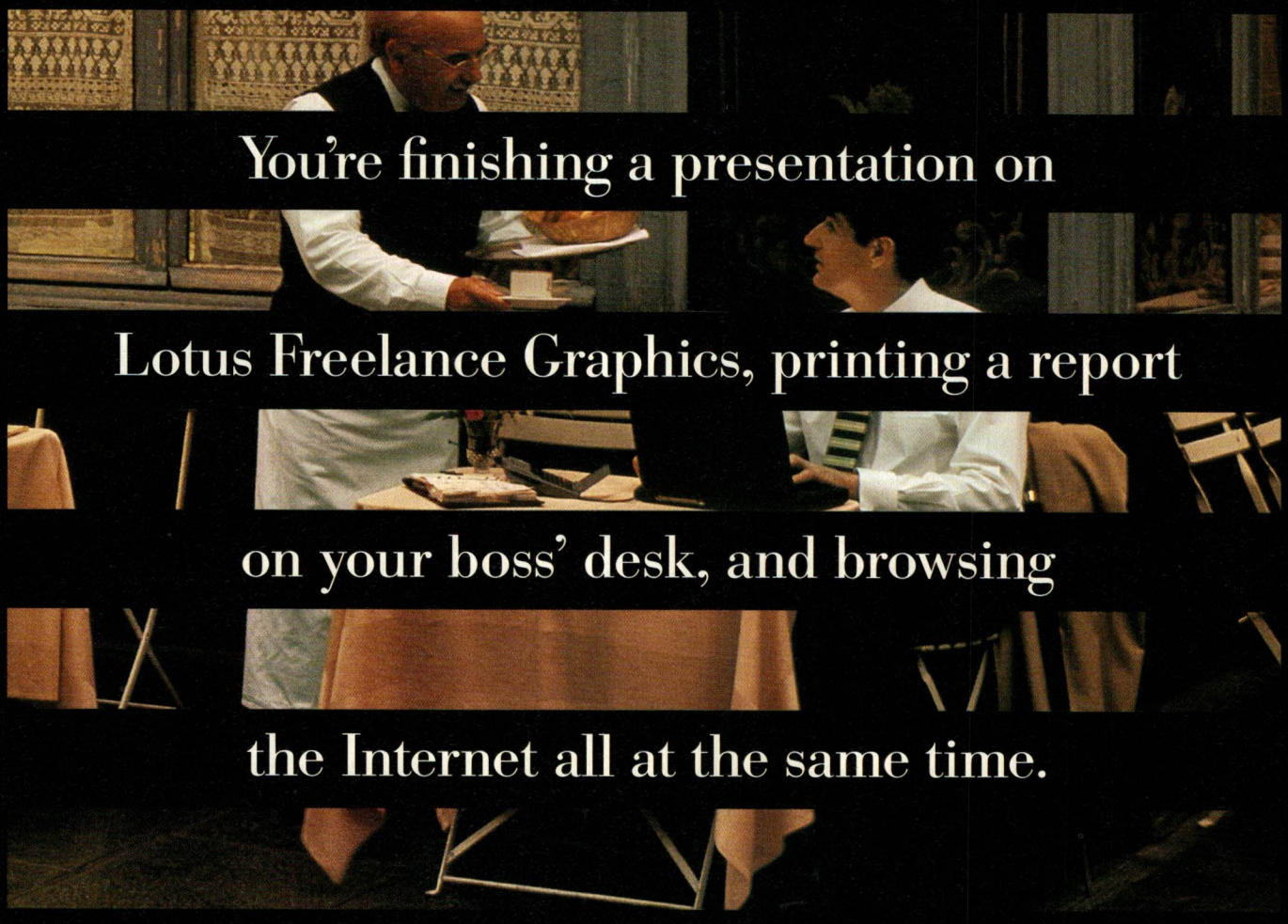
Replication performs an intelligent add, merge, and delete, among different copies of the same database. In other words, even though you're attached to a server in Florida and your team is in the California office attached to the server there, you can share the same database. The two Notes Servers keep their local copies synchronized automatically. In addition, you can make a local copy of the databases onto your laptop computer. You can add, change, and browse information, for example, on an airplane, just as you would locally. When you reach your hotel, dial the Notes server and perform a replication. Your work will be sent to the server (and, therefore, to all other Notes Servers attached), and your local copies will be automatically updated to reflect all changes made while you were in the air! Naturally, this includes your mail database.

Now, that's groupware!

That's really what groupware is: the ability to dynamically share information with others, wherever they are, whatever time zone they call home, whatever operating system they run. The version of Notes Express that was bundled with OS/2 Warp Connect can share information transparently with users who are running the versions of Notes for Windows, Windows NT, Macintosh, several UNIX platforms, or the NetWare Loadable Module version. Useful as a free-form stand-alone database, Notes really shines in a connected environment.

Notes defined a new category of application when it was released, and now Warp Connect users have the opportunity to see for themselves why it is still in a class of its own.

Brian Proffit was part of IBM's OS/2 team and left IBM to become the director of PC Week's Corporate Labs. He is now the president of Visionary Research, senior contributing editor for OS/2 Magazine, and solutions advisor to PC Magazine. He can be reached at Internet 75300.1466@compuserve.com.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OS/2 on the Internet

Tons of OS/2 information only a mouse-click away. By Vicci Conway

If you're using OS/2 Warp 3.0, you have potential access to the Internet. If you're on a LAN, there's a good chance it has an Internet gateway; even if not, dial-up access is becoming increasingly affordable.

The OS/2 Warp BonusPak includes the basic tools for exploring the Internet. If you access the Internet through a dial-up connection, everything starts with the Internet Dialer (if you access the Internet through a LAN, you use other software). Once you're connected with the Dialer, you can use WebExplorer to access pages on the World Wide Web—the hottest (and most hyped) part of the Internet—and also the most user-friendly. You can download software from the Internet to your PC using WebExplorer or FTP-PM. You can read and contribute to global discussions on Usenet newsgroups with NewsReader/2. Use Gopher sites to search for information in on-line libraries and databases.

Not everything on the Internet is worth the download time, of course. That's one difference between the "self-published" World Wide Web and "edited" publications, such as *OS/2 Magazine*. The Internet represents the ultimate *caveat emptor*, let the browser beware. But, when you're trying to contact kindred spirits or find the latest device driver, the Internet is rapidly becoming the place to be.

Our goal isn't to teach you how to connect up to an Internet provider or cruise the Internet with IBM's provided tools or popular third-party utilities; we've covered this ground in other articles (see the resource listing) and zillions of books on the subject exist. Instead, we will provide a thorough listing of IBM-sponsored and independent Internet resources (current through August 1995). To make this list as useful as possible, we haven't listed every site, but have selected those that seem to be of greatest interest to most OS/2 users and developers. For the most part, we've excluded Web home pages that seem dedicated to selling you things, and have instead concentrated on those that provide general information and support to the OS/2 community.

HOT SITES

Keeping you informed about the latest on the Internet, at least as it applies to OS/2, is now part of *OS/2 Magazine*'s continuing mission. Check out the "Just Announced," section, beginning next month, for updates on new and relocated World Wide Web and ftp services.

—*Alan Zeichick*

IBM WORLDWIDE WEB SITES

IBM's Main Home Page: *http://www.ibm.com*
IBM's main home page is a good starting point for all IBM sites. It includes such items as late-breaking news, products, services and support, technology and research, industry solutions, what's new, and country-specific information. This page has excellent search capability.

OS/2 Warp Home Page: *http://www.austin.ibm.com/pspinfo/ os2.html*
Information specific to all versions of OS/2 Warp. Includes specification sheets, ordering phone numbers for most countries and most importantly links to extensive OS/2 information. This page is a must to stay up to date with OS/2.

OS/2 Warp Hardware Compatibility Table: *http://www.austin.ibm.com/pspinfo/os2buy.html*
The hardware compatibility table is now on-line! View, search, or print any part of it. The resources on this page make finding out if your hardware is compatible with OS/2 a breeze.

OS/2 Warp Migration Assistant: *pscc.dfw.ibm.com/warpmi*
Technical information and advice for OS/2 2.x users who want to upgrade to OS/2 Warp. Other technical support is also available in this location.

Personal Software Services: *ps.software.ibm.com /www/usa/ps/services/index.html*
This site is a resource for anyone who needs technical help. Under Public Information and Services (technical), search for tips on products from Bookmaster to VisualAge. Search the technical support database for tips and APARs and links to areas to download fixes, files and Employee Written Shareware.

The Worldwide Electronic Resource Guide

The IBM Worldwide Electronic Resource Guide is a one-stop shopping document containing information about where to find OS/2 and other IBM-related information on the various electronic networks.

The Guide is produced in *.inf* and ASCII text formats, and is updated often. It contains all of the sites listed in this article, including all other IBM sites on the Internet, forum listings on other electronic networks, newsgroups, IBM topic-specific BBS's and more.

For direct links to the Internet sites mentioned in the guide, use a Web browser and point it to http://www.austin.ibm.com /pspinfo/inet.html. You can find the document at the following locations, generally stored in ZIP format as *ibmww.zip*:

America Online:	Go to the 'Computing" icon, "OS/2" topic
CompuServe:	It's in the OS2USER forum, section 8.
Delphi:	Look in Custom Forum 41
Fidonet:	The file is in the General Information area of the Fernwood File Collection.
GEnie:	Go to the OS/2 Roundtable (page 1400)
Within IBM:	It's in the PSP Marketing Communications database under Lotus Notes, or in MKTTOOLS on IBMPC, under IBMWW PACKAGE.
Internet:	gopher to os2info.austin .ibm.com or via anonymous ftp from os2info .austin.ibm.com in the public sub-directory
OS2BBS:	Look in the OS/2 Software Support Library, under option 3 "Documents and Information."
Prodigy:	Check out the OS/2 Club, in the "New Files" area.

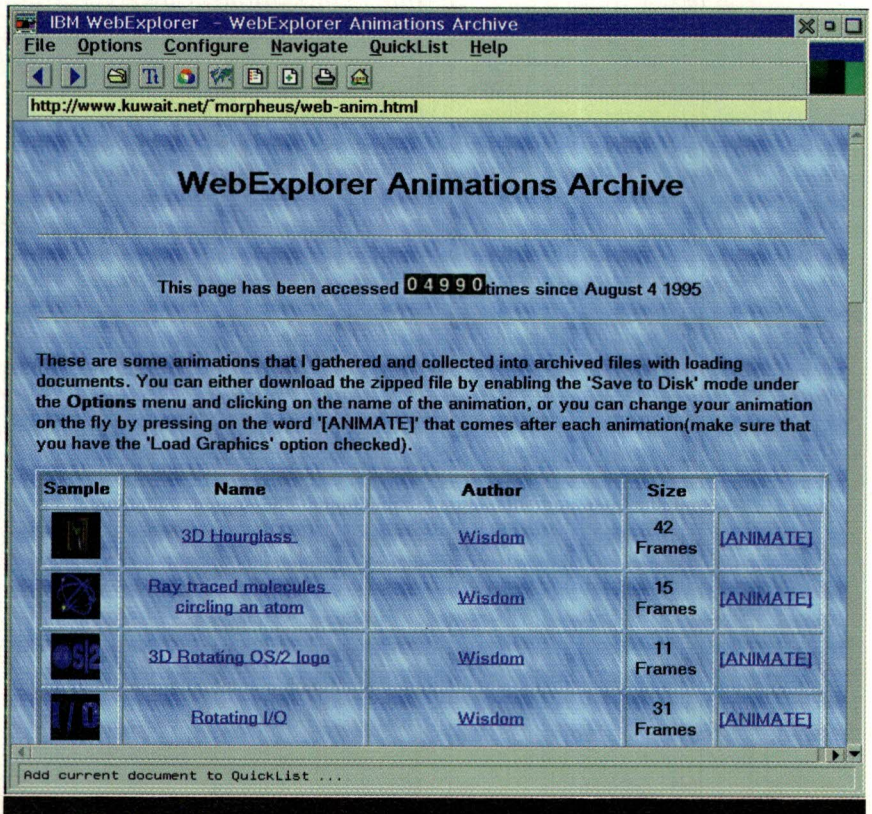
IBM WebExplorer - WebExplorer Animations Archive
File Options Configure Navigate QuickList Help
http://www.kuwait.net/~morpheus/web-anim.html
WebExplorer Animations Archive
This page has been accessed 04990 times since August 4 1995
These are some animations that I gathered and collected into archived files with loading documents. You can either download the zipped file by enabling the 'Save to Disk' mode under the Options menu and clicking on the name of the animation, or you can change your animation on the fly by pressing on the word '[ANIMATE]' that comes after each animation(make sure that you have the 'Load Graphics' option checked).
Sample
Name
Author
Size
3D Hourglass
Wisdom
42 Frames
[ANIMATE]
Ray traced molecules circling an atom
Wisdom
15 Frames
[ANIMATE]
3D Rotating OS/2 logo
Wisdom
11 Frames
[ANIMATE]
Rotating I/O
Wisdom
31 Frames
[ANIMATE]
Add current document to QuickList ...

Figure 1: The WebExplorer Animation Archive.

Solution Developer Support: *http://www.austin.ibm.com/developer*

If you develop or are considering developing OS/2 programs, this is the place to come. News, events, seminars, assistance from IBM, a library, game development information, and other information is available at this one location.

Antivirus for OS/2 Home Page: *http://www.brs.ibm.com/ibmav.html*

Comprehensive information on AntiVirus software for your computer.

OS/2 WarpTV Drivers: *http://www.europe.ibm.com/getdoc/psmemea/prodcat/opsys/wtv*

This site offers the Workplace Shell Television Object for OS/2 Warp, which includes a device driver for the Hauppauge Win/TV Celebrity Card. It is free for the download.

User Group Relations: *http://www.austin.ibm.com/pspinfo/ibmpcug.html*

This site provides information about IBM's User Group Relations Department, including upcoming scheduled demonstrations.

Trade Shows Online: *http://www.austin.ibm.com/tradeshow*

Stop by this site to find out where IBM's software products will be exhibiting next and where they have recently been exhibited. Information on how to get into the shows and events that are listed is included, as well as links to related event informaton.

EMEA OS/2 Developer Assistance Program (EMEA): *http://www.europe.ibm.com/getdoc/psmemea/progserv/dap*

Find out about being a developer of products for IBM's software platforms in Europe, the Middle East, and Asia (EMEA).

EMEA OS/2 Device Driver Repository: *http://www.europe.ibm.com/getdoc/psmemea/progserv/device*

This site offers comprehensive device driver files for downloading. See the

User Groups on the WWW

Australia (South) OS/2 SIG: *www.apanix.apana.org.au/os2sig*
Australia (Perth) OS/2 User Group: *www.iinet.com.au/~bobogden/usergrp.html*
Belgium OS/2 User Group: *dinf.vub.ac.be/~we44478/os2bug/Netherlands.html*
Berkeley, Calif. OS/2 User Group: *warp.eecs.berkeley.edu/os2*
Boston Computer Society: *www.mit.edu&colon.8001/activities/os2/bcs.html*
Carnegie Mellon Univ.: *www.club.cc.cmu.edu&colon.8001/~jgrande/cmuos2.html*
Cleveland, Ohio: *www.trnet.com/cos2ug/cos2ug.html*
Flensburg (Germany) OS/2 User Group: *w3.allcon.net.os2/usergroup/index.html*
Miami (FL) OS/2 User Group: *www.shadow.net/~don*
MIT OS/2 Web Page: *www.mit.edu&colon.8001/activities/os2/os2.html*
Mid-Atlantic (Virginia Beach): *www.pinn.net/~reaper/maos2ug.html*
North Suburban Chicago OS/2 User Group: *nscoug.gco.com*
Pacific Northwest: *www.halcyon.com/pnwos2ug/pnwos2ug.html*
Team OS/2 (Germany): *www.nordwest.pop.de/nda/crew/os2*
Technische Universitat Muenchen (Germany): *www.leo.org/archiv/os2/os2-ug*
Toronto OS/2 User Group: *www.io.org/~to2*
Univ. of Texas, Austin: *www.utexas.edu/students/os2users/os2usersgrp.html*

FTP SITES:

IBM's Service Repository: *ftp.software.ibm.com*
This is the main site for all Corrective Service Diskettes, APARs, bug fixes, IBM Employee Written Software, and more. It covers OS/2, DOS, LAN Server, and AIX. Read the README files for directory structure and help.

T.J. Watson Research Center: *software.watson.ibm.com*
If you can't find it on the site listed above this one, check here at the Watson site. This site has been in existance much longer and will have some of the older files that have not yet been installed on the personal software site.

OS/2 Device Driver Repository: *ftp.europe.ibm.com*
This site has extensive device drivers that have been divided into directories according to type of equipment, including an index file. Other files include movies, information on the Developer Assistance Program, and much more. This site is a valuable place to check when looking for OS/2 information and files.

IBM's OS/2 Information FTP Site: *os2info.austin.ibm.com*
Information on DOS, OS/2 and LAN Server products, as well as newsletters, Team OS/2 files, and more are listed here. The IBM Worldwide Electronic Resource Guide can be found at this site. This is not, however, a site for technical fixes or device drivers.

IBM Networking: *networking.raleigh.ibm.com*
This site provides technical guidance, education, and customer case studies. Current and back issues of the APPC Connection, a newsletter that is distributed in 82 countries are also available. In addition, technical information on a wide variety of networking-related standards is provided, as well as press releases, product announcements and technical papers.

IBM PC Company: *ftp.pcco.ibm.com*
This site offers extensive files on drivers, fixes, and so on, for hardware, as well as DOS, OS/2, Netfinity, Employee Written Software, and other product information and drivers. A great site to check frequently.

IBM Hursley Park, UK: *ftp.hursley.ibm.com*
This site has a surprising wealth of information and files. You'll find information on products, such as Callpath, CICS, GDDM, MQ Series, Person to Person, and more in the */pub* directory. You'll find shareware, an incoming directory for user uploads, and IBM Employee Written Shareware in the *pub/os2* directory, and, best of all, every driver and file that IBM Boca distributes (fixes, APARs, drivers, etc.) in the *pub/os2/pspdist* directory.

IBM Internet Connection: *ftp.ibm.net*
The Advantis FTP site contains all of the IBM Internet Access Kit software, as well as other Internet programs, game information, an incoming directory for user uploads, and more.

OTHER FTP SITES

Walnut Creek Hobbes OS/2: *ftp.cdrom.com*
Extensive source of OS/2 shareware, freeware, newsletters, and so on. Check in the */pub/os2* directories.

OS/2 section of the LEO archive in Muenchen, Germany: *ftp.leo.org*
Another extensive source for OS/2 files and information. Check in the */pub/comp/os/os2* directory.

New Mexico State University OS/2 Area: *hobbes.nmsu.edu*
An extensive source of shareware, freeware, newsletters, drivers, and so on for OS/2 and other products. Directory structure is self-explanatory.

InfoMagic Hobbes Mirror: *boris.infomagic.com*
A mirror of the Hobbes site (which is often busy). In the */pub/mirrors/hobbes* subdirectories.

NECTEC File Archive: *ftp.nectec.or.th*
A mirror of the Hobbes site (which is often busy). In the */pub/mirrors/os2* subdirectories.

Cleveland OS/2 User Group: *ftp.wariat.org*
The */pub/os2* subdirectory offers the latest IAK and other Internet software.

Houston, Texas: *netsplit.phoenix.net*
An alternate site for OS/2 Internet

applications. Look in the */pub/users /vccubed/os2* subdirectories.

Team OS/2 Information:
ftp.teamos2.org
Located in the OS/2 Information, then the Team OS/2 Information area, is a copy of the latest list of Teamers, all issues of the Team OS/2 Newsletter and the Team OS/2 logos in various formats (zipped into one file).

IBM GOPHER SITES

OS/2 Gopher:
os2info.austin.ibm.com
IBM's personal software gopher includes information on DOS, OS/2 and LAN Server products, as well as newsletters, REXX information, IBM Employee Written Software and more. This server is not for technical files (in other words, drivers, fixes, and so on). The IBM Worldwide Electronic Resource Guide is found here on the main menu.

Almaden Research Center:
index.almaden.ibm.com
AS/400, Virus Information Center, IBM Announcements, OS/2, and others are but a few topics on this gopher. In addition, you'll always find the newest Gopher software here. The developer of IBM's Gopher product runs this server.

IBM Announcement Letters:
gopher.ibmlink.ibm.com
This site includes IBM Education and Training, covering a wide range of hardware and software, business and profession development, conferences, and much more.

IBM Client Server Computing Gopher Server:
csgopher.gpl.ibm.com
The IBM Client/Server Computing Gopher Server is a repository for newsletters, technical articles, product information, current events, and other information that is related to Client /Server and LAN Computing.

IBM Internet Connection:
updates.gopher.ibm.com
This site has all of the latest Internet Access Kit software updates, as well as links to other IBM and non-IBM gophers around the world. Tips and new user information, Internet Support, links to fun sites, and much more can also be found here. In addition, it provides links to what seems like all the other gophers in the world; including Veronica and the gopher search tool.

IBM Global Network/Advantis Gopher:
mx.openlab.advantis.net
This site has information on the wide range of services that the IBM Global Network offers to businesses. If your company needs any sort of network access, check here before making a decision.

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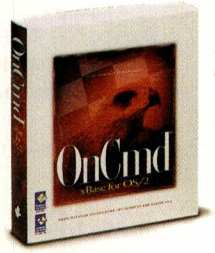

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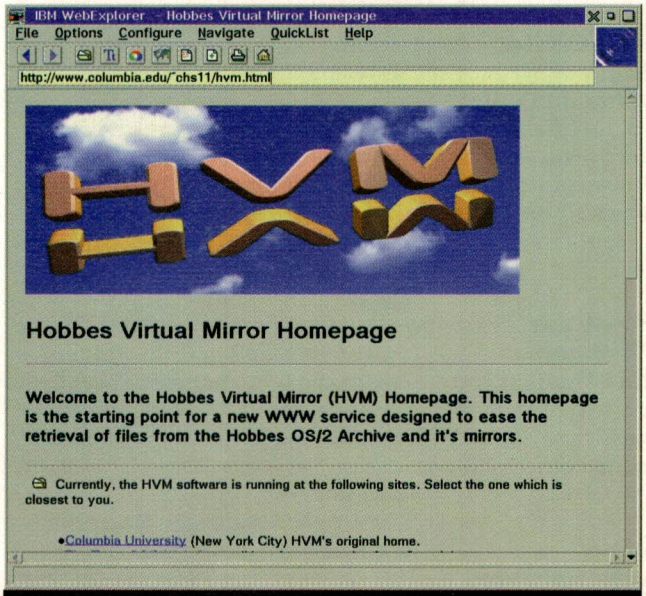
IBM WebExplorer - Hobbes Virtual Mirror Homepage
File Options Configure Navigate QuickList Help
http://www.columbia.edu/~chs11/hvm.html
Hobbes Virtual Mirror Homepage
Welcome to the Hobbes Virtual Mirror (HVM) Homepage. This homepage is the starting point for a new WWW service designed to ease the retrieval of files from the Hobbes OS/2 Archive and it's mirrors.
Currently, the HVM software is running at the following sites. Select the one which is closest to you.
•Columbia University (New York City) HVM's original home.

Figure 2: The Hobbes Virtual Mirror Home Page.

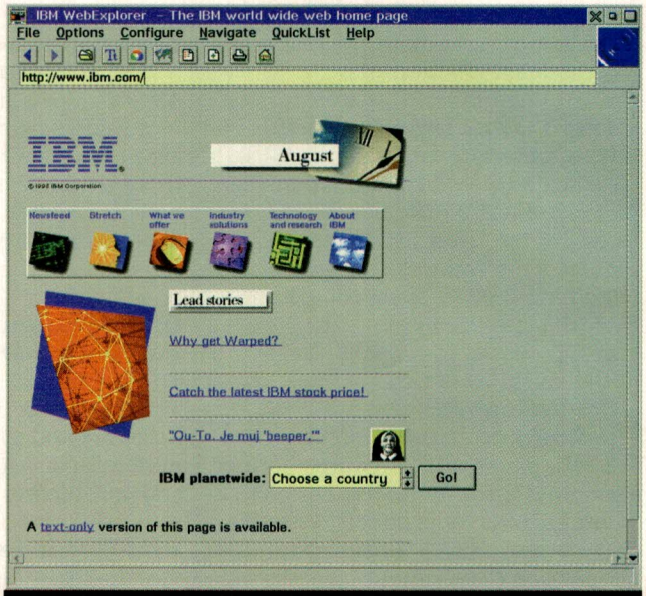

Figure 3: The IBM Home Page.

listing of IBM FTP sites. Using FTP will probably be faster than downloading through a World Wide Web browser, for example, WebExplorer.

Internet Connection:
http://www01.ny.us .ibm.net
Includes What's New on the IBM Network, specific country information, and many links to IBM and non-IBM sites on the WWW. (For graphics, add *menu00.html* at the end of the URL)

International Technical Support (Redbooks):
http://www.redbooks.ibm.com/redbooks
Your guide to the technical books that have been produced by IBM experts in their fields. Good searching tools to find the right book for your how-to needs.

Special Needs Solutions:
http://www.austin.ibm.com/pspinfo/snshome .html
This site provides information about IBM technology to help enhance the education, employability, and quality of life for persons with disabilities.

Networking:
http://www.raleigh .ibm.com
IBM's Networking home page is home to the group that put the IBM Internet Connection software together. Good information about networking products from the group in Raleigh is provided.

Person to Person:
http://www.hursley.ibm.com/p2p
These pages contain informaton about the person-to-person collaborative working product family and the Lakes architecture upon which it is based, in addition to links to further information and their FTP server.

REXX Language:
http://www2.hursley.ibm.com/rexx
Tons of information about REXX, including Frequently Asked Questions, lists of books, the Rexx Language Association, and more.

Editor's Choice:
http://www.ibm.com/News/#editorschoice
New pages on the IBM web are listed here, as chosen by individuals within IBM Corp.

IBMLink:
http://www.ibmlink.ibm.com
Under the IBMLINK, then go to Public information catgories, one can link to IBM announcement letters, press releases, specification sheets, and much more. This same information is available at their gopher site (listed in the IBM Gopher section).

Software Home Page:
http://www.software.ibm.com
Extensive information and links to all of IBM's software products and services.

Lotus: *http://www.lotus.com*
Find out about the latest information on IBM/Lotus desktop strategies and software. Product and technical information is provided in addition information about purchasing products on-line.

NON-IBM WEB SITES

OS/2 Warp FAQ:
http://www.mit.edu:8001/activities/os2/user.html
You'll find Timothy Sipples' famous OS/2 Warp Frequently Asked Questions (FAQ) listing in several formats. You'll find help and hints on OS/2, playing games on OS/2, and links to important OS/2 places.

Team OS/2 Online:
http://www.teamos2.org
Here's a place where you can find out about Team OS/2 and how you can participate. This site has exploded in growth in the short time it's been around. It links many of the more

important OS/2 non IBM-owned sites on the net.

Yahoo's OS/2 List:
http://www.yahoo.com/Computers/Operating_Systems/OS_2
This site contains pointers to extensive OS/2 resources and other links.

Pete Norloff's OS/2 Shareware BBS:
http://www.os2bbs.com
This site has been billed as the home of the world's largest collection of OS/2 Shareware and Freeware Programs and Information. It certainly lives up to its reputation. Though only select files are available for downloading via the World Wide Web site, complete information on getting to the BBS via phone, telnet, or virtual modem is provided. This site also includes David Barnes' home page, as well as links to the complete listing of Worldwide OS/2 BBSs and the ColoradOS/2 International Software Developers' Conference.

California Institute of Technology:
http://www.ccsf.caltech.edu/~kasturi/os2.html
This site offers an extensive and impressive list of links to various types of OS/2 information.

OS2Web:
http://www.teamos2.org/os2web
This site contains inks to other locations, including many OS/2 software archives.

Raj's OS/2 Home Page:
http://www.teamos2.org/~rsingh
Great links to a multitude of OS/2 hotspots.

TCP/IP Applications for OS/2:
wc62.residence.gatech.edu/sorensen/tcpip.html
An extensive listing of all known Internet applications for OS/2.

The OS/2 Internet Apps Page:
http://www.phoenix.net/~vccubed/os2apps.html
A great location for the updated versions of IBM's Internet Access Kit software and tons of other Internet applications for OS/2. Also includes descriptions of each application that is listed.

The Internet Relay Chat OS/2 Home Page:
venus.ee.ndsu.nodak.edu/os2
This site provides links to many interesting pages, such as personal user home pages and information about the Internet Relay Chat program.

OS/2 Warp Pharmacy:
http://www.zeta.org.au/~jon/WarpPharmacy.html
The Warp Pharmacy includes the Tonic Shelf, the News Shelf, the Hardware Shelf, the Software Shelf, the Symptoms Shelf, the Procedures Shelf and more. You can also search the IBM Technical Support Database from the Warp Pharmacy. If the main site is

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Create ISO 9660 standard CDs that can be read by virtually any DOS, Windows and OS/2 system.
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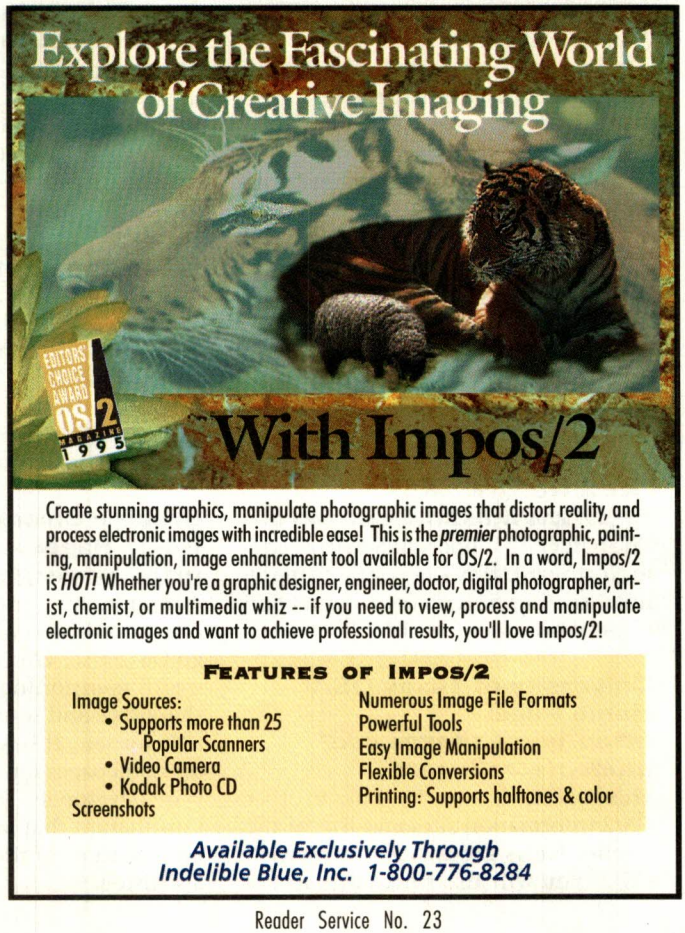
Reader Service No. 22


Explore the Fascinating World of Creative Imaging
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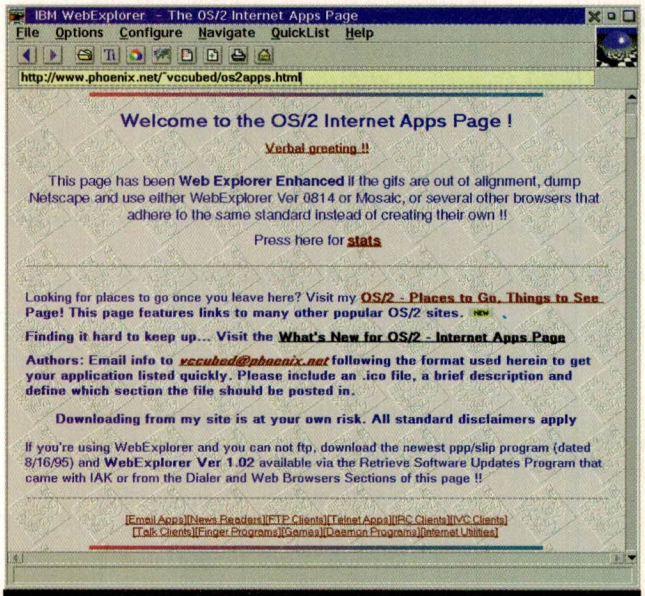
With Impos/2
Create stunning graphics, manipulate photographic images that distort reality, and process electronic images with incredible ease! This is the premier photographic, painting, manipulation, image enhancement tool available for OS/2. In a word, Impos/2 is HOT! Whether you're a graphic designer, engineer, doctor, digital photographer, artist, chemist, or multimedia whiz -- if you need to view, process and manipulate electronic images and want to achieve professional results, you'll love Impos/2!
FEATURES OF IMPOS/2
Image Sources:
• Supports more than 25 Popular Scanners
• Video Camera
• Kodak Photo CD
Screenshots
Numerous Image File Formats
Powerful Tools
Easy Image Manipulation
Flexible Conversions
Printing: Supports halftones & color
Available Exclusively Through
Indelible Blue, Inc. 1-800-776-8284
Reader Service No. 23


IBM WebExplorer - The OS/2 Internet Apps Page
File Options Configure Navigate QuickList Help
http://www.phoenix.net/~vccubed/os2apps.html
Welcome to the OS/2 Internet Apps Page !
Verbal greeting !!
This page has been Web Explorer Enhanced if the gifs are out of alignment, dump Netscape and use either WebExplorer Ver 0814 or Mosaic, or several other browsers that adhere to the same standard instead of creating their own !!
Press here for stats
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[Email Apps][News Readers][FTP Clients][Telnet Apps][IRC Clients][VC Clients]
[Talk Clients][Finger Programs][Games][Daemon Programs][Internet Utilities]

Figure 4: The OS/2 Internet Apps Home Page.

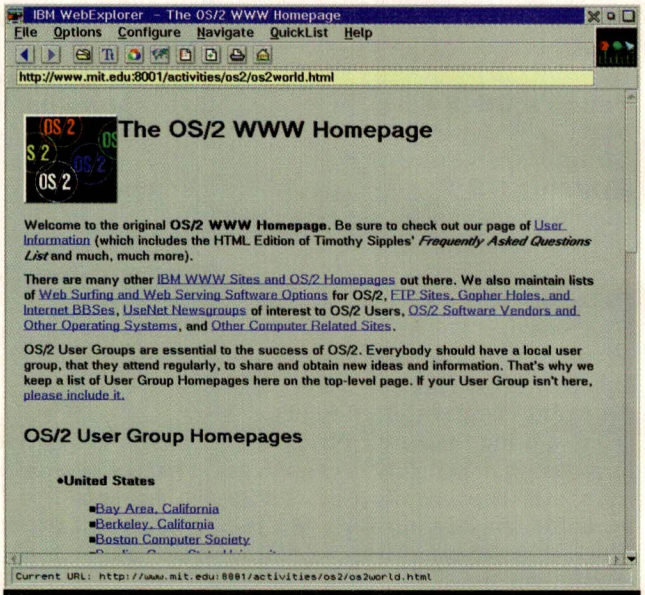
IBM WebExplorer - The OS/2 WWW Homepage
File Options Configure Navigate QuickList Help
http://www.mit.edu:8001/activities/os2/os2world.html
The OS/2 WWW Homepage
Welcome to the original OS/2 WWW Homepage. Be sure to check out our page of User Information (which includes the HTML Edition of Timothy Sipples' Frequently Asked Questions List and much, much more).
There are many other IBM WWW Sites and OS/2 Homepages out there. We also maintain lists of Web Surfing and Web Serving Software Options for OS/2, FTP Sites, Gopher Holes, and Internet BBSes, UseNet Newsgroups of interest to OS/2 Users, OS/2 Software Vendors and Other Operating Systems, and Other Computer Related Sites.
OS/2 User Groups are essential to the success of OS/2. Everybody should have a local user group, that they attend regularly, to share and obtain new ideas and information. That's why we keep a list of User Group Homepages here on the top-level page. If your User Group isn't here, please include it.
OS/2 User Group Homepages
•United States
■Bay Area, California
■Berkeley, California
■Boston Computer Society
Current URL: http://www.mit.edu:8001/activities/os2/os2world.html

Figure 5: The OS/2 WWW Home Page.

busy, many alternates are cross-linked with each other. You might want to try two others: *http://www.teamos2.org/pharmacy/WarpPharmacy.html* and *http://www.cs.tuns.ca/~boutilmw/WarpPharmacy.html*

OS/2 Software Library: *http://www.state.ky.us/software/os2.html*

This site includes the latest Internet Access Kit updates, multimedia files, and more.

University of Warwick: *http://www.warwick.ac.uk/~phueg/os2*

This site contains news about OS/2, groovy bitmaps and fonts, other Internet sources, jokes from the 'Net, and more.

OS/2 Northwest BBS *http://www.os2nw.inetnw.com*

The best OS/2 support BBS in the Pacific Northwest, this site contains many links to other sites on the Internet and information about the BBS.

University of Texas OS/2 Home Page: *http://www.utexas.edu/students/os2users*

This site offers quite a few links to other OS/2 information sites and lists of the Usenet News groups that deal with OS/2. You will also find a link to the OS/2 User Group at the University of Texas page.

Listing of OS/2 Applications: *http://www.mfi.com/os2dev/os2tree/os2top.html*

This site contains a comprehensive listing of OS/2 applications on the market, broken down into catagories, such as accounting, graphics, games, and so on. a detailed description of each product is included.

CFS Nevada Inc.: *http://www.cfsrexx.com*

This page is home to Dick Goran, author of The REXX Reference Summary Handbook. The page contains many utilities, that were written by Dick, and links to other REXX sites and information.

Greater Chicago OS/2 Home Page: *http://www.gco.com*

Although this homepage and associate BBS are affiliated with the three Chicago OS/2 User Groups, it is very much worth mentioning here. This site has shareware and software that are available for sale. It has also offered to put up homepages for shareware and software developers. Much local Chicago information that pertains to OS/2 and links to some of the best OS/2 sites are also listed.

CalTech OS/2 Web Page: *http://www.ccsf.caltech.edu/~kasturi/os2.html*

This site contains a fairly comprehensive set of links to sites on the Internet, where you can find OS/2 information and files.

Vicci Conway works in IBM's Personal Software Products' Electronic Marketing Department. She is the Program Manager for Worldwide OS/2 Electronic Information Strategy, with a focus on getting OS/2 information inside IBM posted externally on the electronic networks. She has been with IBM for 14 years, a CompuServe member for 10 years, and is the author of IBM's Worldwide Electronic Resource Guide. You can reach her at vicci@vnet.ibm.com or CompuServe 76711,1123.

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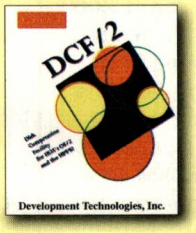

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Author: The Design of OS/2

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Building an OS/2 BBS

Constructing your own electronic bulletin-board system.

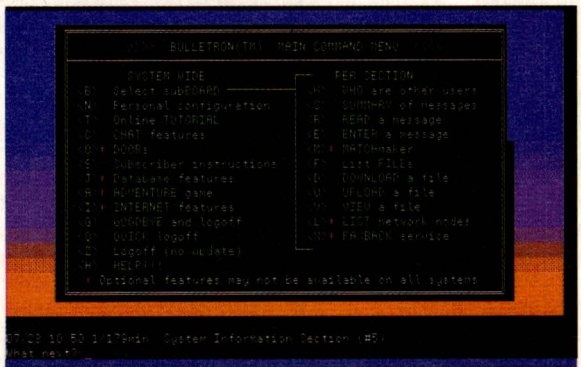
By Esther Schindler

When you chose OS/2 as your operating system, you probably considered a few of its features to be especially important. OS/2 is robust and stable; you can depend on it to keep running. You can get started without being a rocket scientist, yet its flexibility gives you the power to work the way you choose. Its multitasking truly works, so several intensive tasks can run concurrently.

Long before OS/2 was developed, those attributes were important to a different set of computer users: BBS sysops, the systems operators who operate electronic bulletin boards. BBSs are used by and for hobbyists, user groups, corporate internal communications, and computer company technical support. Despite the popularity of the Internet and on-line services, BBSs are thriving; estimates are at 40,000 to 50,000 active BBSes around the world.

This article examines the issues that are involved in choosing and establishing an OS/2-based BBS. We won't cover the basics of how BBSs operate. Specialty books and publications are devoted to that topic. Nor is this a review of the several native OS/2 BBS packages that are available. Instead, with the input of dozens of BBS sysops from around the world, we will focus on the issues that an OS/2 user needs to contemplate in establishing an OS/2-based BBS.

PC Board for OS/2 appears the same to the user asPC Board for DOS. From the sysop point of view, it provides an impressive number of customizeable features and a long-established supply of after-market utilties.



Bulletron can be used as an intra-office electronic mail and news service with no modems, serial ports, or phone lines; its LAN connections support OS/2's named pipes interface.

What's a BBS, anyway?

Once upon a time, no commercial on-line services existed. The Internet was only accessible to people in government agencies or universities. When computer users wanted to find shareware files or communicate with others around the globe, they dialed into BBSs (sometimes at the awe-inspiring speed of 300 bps or, perhaps, even 1,200 bps). Some BBSs had a general focus; others specialized in topics that ranged from farming and stamp collecting, to nonprofit activities, to yes, sex.

As the number of BBSs grew, they began to offer more sophisticated services than chatting and file sharing. Among common BBS services are doors, which are separate programs that can include anything from a zip-code lookup application to a graphic adventure game. BBSs can have live teleconference areas where users can chat in real time.

Most BBSs provide the ability to communicate with the world outside themselves. A BBS can use any of a half-dozen network echoes or networks of BBSs, such as FidoNet, VirtualNet, IBMNet, and RIME. Once a day, the local BBS calls another BBS and exchanges packets of data. It's a comparatively slow way to communicate around the world, but it's usually free—or at least included in the cost of a given BBS

membership. The ability to access the Internet from the BBS and the ability to dial into the BBS are comparatively new, but very exciting, features to the BBS universe (see sidebar).

BBS software is a specialized kind of communications program. BBS software is like a network server; it manages a database of authorized users. It provides the file, messaging, and other services to dial-up or networked users and includes the interface (generally text menus) that lets the users get their work done. A BBS is clearly a very communication-intensive application. An ordinary BBS might have four phone lines, but BBSs with several-hundred dial-up lines are not uncommon.

AdeptXBBS is new BBS software that was written from the ground up for OS/2. Sysop tools are PM-based; it is available for both Intel and PowerPC versions of OS/2.

Why run a BBS? Perhaps you want to provide technical support to your customers. You might have a service business that provides data to a select group of people. Operating a BBS is an easy and inexpensive way to control the access to that information. Many companies run BBSs internally as an alternative to e-mail and to promote group discussion. Or, you might do it just for fun.

Running a DOS BBS under OS/2

If all you want is a simple BBS that won't crash, you might be happy with a DOS BBS running under OS/2. OS/2's stability and ability to multitask DOS communications applications, without dropped characters or bizarre crashes in the middle of the night, ensured OS/2's immense popularity among sysops. Many sysops once depended on Quarterdeck's DESQview and other task-switchers to provide multiline BBS support. OS/2 does the same thing—in spades.

Running a DOS-based BBS under OS/2 is like running any other communications application under OS/2—only more so. Some BBSs take a bit of tweaking to get working perfectly. However, most DOS BBS software works just fine under OS/2, and support is readily available from other sysops on the Fido echoes.

What about hardware? In general, those answers are easy. Any system that will run OS/2 will run an OS/2 BBS. However, as with any OS/2 system running many tasks, more RAM is better than less. A fast hard disk will improve performance on a BBS—then again, it makes a difference on any desktop machine or server.

Sysop Matt Ion advises that you should make sure you use high-speed (16,550 UART-equipped) serial ports. "I don't recommend internal modems for a BBS; if one locks up, it means you have to reboot the whole machine, which negates the whole concept of multitasking."

Also, consider the multi-port serial cards that support four or eight or more COM ports. Recommendations included STB's four-port card and co-processed 8 and 16-port intelligent DigiBoards. No matter which BBS you choose, you will definitely want to register a copy of Ray Gwinn's SIO comm drivers (see "The Esther Utilities 2.0," June 1995, p. 47).

Why a native OS/2 BBS?

Just as OS/2 applications offer benefits over their DOS and Windows brethren, OS/2 BBSs can offer more integration with the operating system, multithreading, long file names, and other OS/2-specific advantages. If you run a DOS BBS and wanted to change the CD-ROM in the shared drive, you have to shut down the BBS. With an OS/2 BBS, the BBS can stay live while you change CD-ROMs or adjust the BBS configuration.

Or, as Mary Higgins, sysop of the South Shore Secrets Adult BBS [(617) 383-2789] said, "Why OS/2? Because no other operating system can match the task-per-seconds that a 32-bit OS/2 can. You can expect to get twenty million TPS from a 40MHz 386, which means that you can handle approximately 700 users at 28,800 bps, or 1,400 users at 14,400bps—on one 40MHz 386. I do not think any BBS out there can match that. Bulletron can run 2,000 users on one 66 MHz 486. The savings in hardware alone should be enough to convince anyone that running under OS/2 is the only way to go."

Obviously, some BBS packages are better at providing OS/2 integration than others. Yet, unlike much of the OS/2 general application market, when you go shopping for OS/2 BBSs, you'll have more choices than you can handle. You can use very simple but bulletproof BBSs, such as Simplex, or you can choose among powerful and complicated systems. For example, the hub for US West's Colorado Teacher Training Network project runs on a 66 MHz 486 DX with LoraBBS and Web Server with up to 25 simultaneous connections, and variations of modem/telnet/ftp/web hits—all at once. The system moves Fidonet and internet mail, conferences, newsgroups, and it has approximately 1,400 active users (all teachers or administrators).

Don't expect a pretty user interface. BBSs are often ugly. But, content is usually more important to BBS users. The user is usually presented with text menus. In terms of sheer attractiveness, my personal vote (after spending weeks dialing into dozens) is for the AdeptX BBS. Sysop tools are generally text-based (only AdeptX emphasizes its PM graphical front-end).

The 14-day event timer rule

If you already dial into BBSs frequently, you probably know what features are available and which ones you care about. In that case, you don't need very much advice from us.

However, choosing software (or nearly anything else), when you know little about the topic, makes you susceptible to the features that the sellers provide, instead of the features that will be important to you. I call this dilemma Esther's 14-Day Event Timer Rule (E14DETR). If you go shopping for your first VCR, you're likely to notice that

two have the same price — but one will let you record events 14 days in advance instead of only 7. Doesn't that imply that it's better? Yet, most of us rarely (or never) record more than 24 hours in advance.

Contrast that with the unadvertised features. If you ask a friend why he likes his new VCR, he's apt to say that the remote control is bright enough to find on the couch or the controls can easily be read in the dark. Those are real features that matter. The E14DETR makes you vulnerable to feature charts and performance tests and can obscure the real advantages and disadvantages of a given product.

As a result, when I wanted to find out what was important in choosing OS/2 BBS software, I didn't immediately approach the software developers who sell OS/2 BBS software. I went to the users: the sysops. I posted messages on the FidoNet OS2BBS echo, on CompuServe's PCBBS forum, and on the Usenet newsgroup *alt.bbs*. I asked sysops what OS/2 BBS software they used, why they picked it, and how they felt it compared to the competition. Only after I'd corresponded with dozens of sysops did I call the software developers to find out how feature-laden their products were.

I learned a great deal from those sysops and am deeply grateful to them. Of course, because I had so much input, much of it was contradictory. One sysop would say, "Z is great at such-and-so, not like that horrible Y BBS I tried," while another would tell me that Y was superior at the same feature, especially in comparison to Z. There were favorites: Maximus/2 and AdeptX had the most and loudest supporters. BBS sysops rarely mentioned any feature that you'd find in a comparison chart (nobody said "I chose this one because it supported 26 file-transfer areas"), but a few attributes were mentioned frequently. If you do dive into the feature charts, you'll quickly lose yourself in comparisons between minutiae, such as the length of a file description—and it's worth noting that none of the sysops with whom I corresponded ever mentioned any such details.

Most of what BBS sysops look for is stability and support. I heard such phrases as "bullet proof" and "solid as

Putting a BBS on the Internet

By Dennis Fowler

BBSs on the Internet are as logical a combination as syrup on waffles. The whole concept of the BBS is based on connecting users to information. The Internet functions as a source of content for a BBSs' dial-in callers as well as a source for callers who want to find out what a particular BBS offers.

The simplest connection—one that connects callers to the Internet indirectly, is Internet e-mail. This connection can be made relatively simply and inexpensively. By getting their board on FidoNet, a free volunteer-run network of BBSs that is available worldwide, sysops can not only gather the FidoNet message conferences, but can also give their callers Internet e-mail, using the gateways that exist between FidoNet and the Internet.

If the FidoNet node is within the local calling area, this connection can be established at virtually no cost to the sysop, as it involves only a periodic call by the BBS to that FidoNet node to exchange message packets. If a long-distance call is involved, however, the cost rises, possibly significantly. FidoNet traffic, when it includes the FidoNet conferences, can run many megabytes a day, leading to considerable connection time.

To counter this, companies, such as PageSat and Planet Connect provide in-bound feeds of the FidoNet conferences and e-mail and even Usenet newsgroups, to the BBS via satellite dish. By putting the inbound traffic on the satellite feed, the BBS is left with only the relatively light outbound traffic to "toss" to FidoNet or a UseNet provider. A Planet Connect feed can be set up for as little as $300, if the sysop already owns a satellite dish. Otherwise, the hardware costs approximately $500. The monthly charge for Usenet newsgroups can cost approximately $30 per month on an annual basis.

Internet e-mail and Usenet Newsgroups can also be obtained more directly from the Internet, if the sysop is willing and able to establish a direct link to the Internet using what is called a UUCP account. UUCP stands for UNIX to UNIX Copy Protocol and is the message transfer protocol that is used on the Internet. Such a link will cost anywhere from $10 per month to $100 per month, depending on the location, the provider, and the volume of e-mail and UseNet traffic. It can be run through a standard modem over a regular telephone line.

Most commercial BBS software today comes with UUCP capability, making the connection relatively simple. It can be an add-on module to the board's basic software. Frequently, it is included in the basic package at no extra cost. This setup is Internet access at its most basic level—e-mail and newsgroups. The next steps are both more costly and somewhat more complex, which is what is most often referred to as "putting a BBS on the Internet."

They range from offering inbound telnet to the board to Internet users, to providing FTP (File Transfer Protocol) service for the dial-in BBS callers, to access to other Internet files libraries, such as Gopher sites, to Internet Relay Chat, a 24-hour-a-day worldwide gab-fest.

Fortunately, OS/2 offers some unique tools and capabilities that both simplify the process and keep the price down to an acceptable level. With Ray Gwinn's SIO software, along with his *vmodem.exe* (Virtual Modem), OS/2 offers a simple direct link, once a dedicated connection to the Internet is established. This dedicated line can be as simple and slow as a standard dial-up telephone line or as powerful as a 1.5 MB-per-second T-1 connection.

Very simply, SIO is used to create a virtual serial port that connects to the Internet. VModem sits between the Internet and the BBS software as a virtual modem, providing the BBS software with the messages that are needed to make the BBS think that it is talking to a real modem. When a caller telnets in to the BBS from the Internet, VModem takes the call and tells the BBS. The BBS answers and logs the caller in—as if he had dialed in.

The physical connection between the BBS computer and the Internet can be made as simply as a standard modem talking to a standard dial-up telephone line that might cost approximately $30 a month to maintain, except for the expense of the Internet account. The account adds anywhere from $30 to $100 per month to the cost, depending on location and the provider. The service provider must be willing to allow that line to remain constantly in use and provide the BBS with a fixed IP address on the Internet, so that callers who want to come in can find it.

A standard phone line connection will serve a single caller telnetting in, but not much more. If more than one caller is to be served, the connection needs more bandwidth or speed to serve them. The next step up, which is not available in all areas yet, is ISDN service, which stands for Integrated Services Digital Network. An ISDN connection costs more ($50 a month or more) and provides up to 128 KB per second—about four times faster than a V.34 modem's top speed. It also requires an ISDN modem, which costs about $300.

The next step up is what is called a T-1 line, which offers about 1.54 mbps of bandwidth. This type of connection runs hundreds of dollars per month, depending on the location and service provider. A single T-1 line can serve a dozen or more callers simultaneously.

An example of the use of a T-1 line with SIO and VModem exists on Clark Development's support board, the Salt Air BBS out in Murray, Utah. Clark Development is the developer of PC Board BBS software. The Salt Air BBS runs on multiple PCs, one of which serves sixteen nodes. Two of these nodes are served by standard modems, while the other fourteen are connected to a T-1 line through SIO and VModem.

That PC Board can perform a useful trick through this setup that improves system performance markedly. Normally, on a BBS that uses such software as PC Board, each node is serviced constantly by a copy of the BBS software, which is running multitasked under OS/2 or DESQview (whether that node is being used at the moment or not). This setup puts a load on RAM and the computer's CPU time.

However, in the case of PC Board combined with SIO and VModem, unused nodes can be left inactive, releasing the system resources they would otherwise use while waiting for a call. The sysop can configure the PC Board control panel to keep unused nodes in reserve, leaving perhaps four out of 10 available nodes active, placing six in reserve. Should those four nodes be busy when a fifth call comes in, VModem notifies the PC Board control panel, which activates one of the reserved nodes, loading the PC Board software to accept that new call and releasing the node when the call is completed.

It is also worth noting that callers who use VModem can use their normal communications software, such as ZOC, HyperAccess, or QModem Pro for Windows to telnet in to a BBS. They can get all the features that their software and the BBS offer, such as ZModem file transfers.

It's also important to note that a connection between the Internet and a BBS is not a one-way inbound street. By connecting to the Internet, the sysop can offer his dial-in callers outbound capabilities, such as outbound telnet, letting them telnet into distant BBS that are on the Internet as well as FTP, Archie, Gopher, even Internet Relay Chat, or virtually any service that is on the Internet. The one exception is, however, access to the Worldwide Web using a Web Browser, such as NetScape. But, even this problem is being addressed by many developers.

An Internet connection establishes the BBS as an on-ramp to the so-called great information superhighway.

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a rock" again and again. BBSs typically run 24 hours a day, 7 days a week, and often in an unattended closet or an empty house. Reliable operation isn't a convenience—it's a necessity.

Sysops primarily choose and stay with a given BBS vendor based on the quality of developer support. BBS authors are accessible and responsive—at least based on the enthusiastic fan mail from sysops. This kind of response is especially gratifying, especially because when I ask for input about a product, I normally hear about all the bugs and vendor problems.

Setup and installation can be easy or difficult, and many sysops chose their package because they considered it easy to get started. Most BBSs do provide a way for you to get going quickly and add complexities later. Unsurprisingly, the BBS vendors all claim that they're great at doing so. Maximus got the most unsolicited votes for ease of setup, though other sysops said they found the system sysop-unfriendly but powerful (and added "but I liked it!").

Another important feature is system flexibility, providing the ability for the BBS to work the way you want. Every BBS package lets you modify menus and customize your BBS, but choosing the package you find easiest to work with is definitely a matter of opinion. BBSs have their own scripting language. Usually, the language is proprietary, but AdeptX uses REXX. Julie Strietelmeier, sysop of The Fret Board BBS [(812) 342-6546], likes AdeptX because she was able to write REXX programs that searched the hard disk for music by a given artist. It then made the music available for download. Larry Weinberg, sysop of the File Freeway [(602) 841-1731], is planning to switch from VBBS/2 to PC Board for OS/2, because the scripting language lets you do whatever you want and many add-ons are already written. If you expect to do more with your BBS than install it with the defaults, make sure you like the scripting language; you'll be working with it closely.

Your priority for other BBS features depends on the purpose of your BBS. Cost makes a difference, especially to hobbyist sysops, and Maximus has the advantage of being available free of charge for noncommercial use. Some packages incorporate support for

echoes, such as Fido and RIME; others require extra work. A few BBS packages, such as LoraBBS and AdeptX, emphasize their built-in access to the Internet, however, most BBSs will let you get there. Others emphasize the graphics formats that they support, such as RIP graphics (a BBS standard for presenting a graphical interface over phone lines).

Some BBSs include every component possible. Others require that you acquire third-party add-ons to give the BBS complete functionality. Both have advantages. You can customize your BBS with parts that fit your needs, using the some-assembly-required packages, such as Maximus and PC Board—especially because many add-ons are available. Or, you can appreciate the integration of such tools as mailer and message tosser that are included with AdeptX and VBBS/2.

VBBS/2 is basic but easy to work with and highly configurable.

OS/2 features

If, however, you're looking for OS/2 BBSs, you're probably interested in how OS/2-like each package is. These features vary widely. However, in general, the packages written expressly for OS/2 take greater advantage of the operating system.

With Bulletron (the OS/2 update to Oracom for DOS, which has a hazy relationship with Oracom for OS/2), you never have to go off-line for daily system housekeeping. Everything is done while the system is active. Every morning, Bulletron makes a backup of its data files onto a different partition, so you can perform a daily tape backup routine without pulling down the BBS.

Scott Carr, sysop of the Dry Dock BBS [(419) 353-0452], described the advantages of using AdeptXBBS. "Adept is a 32-bit PM mode application that takes full advantage of OS/2's power, from multithreading to HPFS' long file names, to named pipes and access to DOS programs. It allows integration to TCP/IP networking for future expansion on the Internet and has a programmable API that is based on REXX, which allows total control over every aspect of the BBS. This complete customizability, seamless TCP/IP access with the OS/2 Warp Internet Access Kit, and support for legacy DOS doors gives me the best of all worlds."

As I write this article, AdeptXBBS is in late beta testing, but it should be available by the time you read this issue.

Other OS/2 BBSs exploit the operating system. The Magnum BBS includes a background execution section that includes background processing, such as compiling QWK message packets (for off-line newsreaders). The user can resume normal BBS operations or even log off while the QWK compilation runs in the background. When it's finished, the completed (password protected) message packet is placed in the file section for the user to download. (As a BBS user, I consider this to be a very cool feature.) Message threading is also live; if two users are logged in and one leaves a message for another, the message will be flagged for the recipient.

A wonderful trend in the BBS universe is the number of DOS BBSs that have OS/2 versions available. For example, at the time this article was written, Clark Development's PC Board v15.22 for OS/2 was in late beta. It promises to be a native 32-bit multithreaded OS/2 program. All nodes share the same executable code in memory, consuming less memory than the DOS version. Both DOS and OS/2 doors and transfer protocols are supported.

Naturally, there'll be trade-offs between choosing a BBS that was designed from the ground up for OS/2 and upgrading from a familiar DOS package, such as PC Board or Maximus. (I asked one sysop who was preparing to upgrade from a DOS BBS to the OS/2 version what challenges he expected. "Making sure the floppy disks are right-side up," he answered.) In addition, starting with a DOS package makes it possible to ease into OS/2 and sysopping.

Finding the right BBS software

BBSing will quickly remind you that OS/2 and BBSs are part of an international community. A BBS package, which is called BBBS, is apparently popular in Finland. LoraBBS is developed in Italy. Helpful sysops invited me to dial into their BBSs in Australia and Germany, however (unless I could get there via the Internet), I gracefully declined.

When I started writing this article, I expected to find one or two OS/2 BBSs. I lost count after ten, and I'm sure I left out a few. Unlike so many other application categories for OS/2, you will have many options. I hope you enjoy exploring them!

Esther Schindler is a computer consultant and writer. She is a contributing editor to OS/2 Magazine, the sysop of the Ziffnet Executives On-line Forum on CompuServe, and coauthor of Teach Yourself REXX in 21 Days, from Sams Publishing. You can contact her at 72241.1417@compuserve.com.

RESOURCES:

Software

AdeptXBBS (from $99 for two-line BBS)
AdeptSoft
3465 NW 27th Ave.
Boca Raton, FL 33434
(407) 883-0999
Fax: (407) 483-2480
E-mail: *sales@adeptsoft.com*

Bulletron (from $149 for two-line BBS)
Online Technologies
P.O. Box 577
East Setauket, NY 11733
(516) 689-2457
Fax: (516) 689-0167
Internet: *syslife@vnet.net*

BBBS
Kim Heino
Paavolankatu 3 D 34
FIN-20240 TURKU
Finland
+358 21 240 7755
BBS: +358 21 240 4036
InterNet: *Kim.Heino@utu.fi*

FidoNet: 2:222/151

LoraBBS (from $46 for two-line BBS)
International: Marco Maccaferri
Arci Computer Club
+39-51-6331730
FidoNet : 2:332/402
AmigaNet: 39:102/304
VirNET : 9:391/105
Internet: macca@arci01.bo.cnr.it
United States: David Hughes
P.O. Box 6592
Colorado Springs, CO 80934-6592
Goldmill BBS (fidonet) +1-719-578-5849
FidoNet : 1:128/67
Internet: *david@oldcolo.com*
FTP: *oldcolo.com /pub/os2*

Magnum BBS (from $89 for two-line BBS)
Gilmore Systems
679 Switzer Ln.
Thousand Oaks, CA 91360
(805) 379-3210
Fax: (805) 379-1341
BBS: (805) 379-3450

Maximus/2
Scott Dudley
FidoNet: 1:249/106
IMEXnet: 89:487/106
Internet: *sjd@f106.n249.z1.fidonet.org*
BBS: (613) 389-8315, 14.4K/HST
777 Downing St.
Kingston, Ont. Canada K7M 5N3

PC Board for OS/2
Clark Development
3950 South 700 East, Ste. 303
Murray, UT 84107-2173
(801) 261-1686
(800) 356-1686
Fax: (801) 261-8987

Simplex
Chris LaForet
BBS: 919-226-6984 or 919-226-7136
FidoNet Mail 1:3644/1 or 1:3644/2 as Chris Laforet
CompuServe 76120,110
BIX Email User ID: laforet

VBBS/2
Virtual Technologies
4246 Elizabeth Ave.
Holland, MI 49424
Roland De Graaf
BBS: (616) 399-4818, (616) 399-8791

Magazines

Boardwatch Magazine
8500 West Bowles Ave., Ste. 210
Littleton, CO 80123
(800)933-6038
E-mail: *subscriptions@boardwatch.com*

Sysop News
8125 S. W. 21st St.
Topeka, KS 66615
(913) 478-3157

Books:

Creating Successful Bulletin Board Systems (39.95)
by Alan D. Bryant
Addison -Wesley Publishing Company

Vendors:

PageSat
(415) 424-0384
(800) 227-6288
E-mail:info@pagesat.net

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Newport,TN 37821
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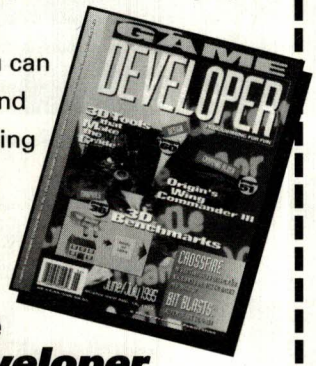

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Reader Service No. 24

Copy, Cut, and Paste

Manipulating graphics using the OS/2 Clipboard.

By Lenny Bailes

If you haven't put the OS/2 clipboard to the test in a production environment, you might think that the chore of transferring images from application to application is fairly transparent; simply copy and paste to get an accurate rendering of a selection in your target application. Unfortunately, that doesn't always work.

When you get into the realm of high-resolution bitmaps and vector graphics, you might discover that a cut-and-paste operation can do anything, including transfer a blank selection, deliver out-of-memory messages, or cause the entire system to crash.

In addition, you might find that the success of copy and paste operations can be linked to the individual format you're trying to transfer. Or, success can depend on the source and target applications. In this article, we've attempted to document some of the clipboard's erratic behavior and provide you with workarounds. You'll also find information about third-party products that can help you avoid using the clipboard at all.

File List Edit Image Colors Window Help
File Display Help
File Edit View Character Chart Graphics Options Help
File Edit View Character Chart Graphics
Options Help
Helvetica

Figure 1: Depending on the target application and the method used for transfer, a copied image can appear with varying degrees of resemblance to the original.

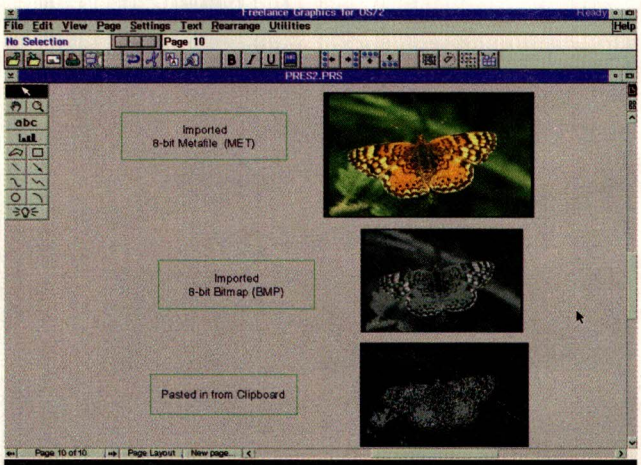

Figure 2: The three source images in this shot have identical appearances when displayed in other programs. However, Lotus Freelance has a definite affinity for the OS/2 metafile (*.met*) format.

Clipping basics

The clipboard is a shared area that applications use to put things into (copy or cut) and take things out (paste). It is normal to use only one clipboard. In OS/2 and Windows, you share one public clipboard between Windows, DOS, and OS/2 sessions. You can also make the Windows clipboard private,which means that you have, in effect, two separate clipboards in OS/2 Warp—one that transmits data between OS/2 and DOS applications and one that transmits data only between Windows applications. This option is toggled for full-screen Win-OS/2 sessions through the Data Exchange tab of the Win-OS/2 Setup object (located in the System Setup folder). Individual DOS and Windows applications toggle clipboard sharing through the DOS or Win-OS/2 settings that are located on the Sessions tab of each program's settings menu.

Theoretically, when public clipboard sharing is enabled, you can transmit text, spreadsheet data, bitmaps, or vector graphics between any DOS, Windows, or OS/2 applications. The only limitation should be the program's native ability to

edit or display text or graphics. Unfortunately, it doesn't always work out this way. Try to transfer a simple bitmap image to a mainstream OS/2 program, such as Lotus Development Corp.'s Freelance Graphics, and you might be disappointed with the results. If you attempt to transfer high-resolution graphic images through the clipboard (with a color depth greater than 256 colors), you will invariably receive out-of-memory messages. In some cases, attempts to copy and paste high-resolution images can cause the OS/2 swap file to swell to more than 100MB, making the system crash.

What works

Generally, the clipboard is a reliable vehicle for transferring text and tabular data. For example, neither Lotus 1-2-3 for OS/2, nor the IBM Works spreadsheet module can directly import a Microsoft Excel 4.0 or 5.0 spreadsheet. However, assuming you own all the applications, it's a simple task to open the file in Excel in a Win-OS/2 session, copy a range of cells, and paste them into either of these two native OS/2 applications. If you copy and paste tabular data (such as that Excel spreadsheet) to a non-spreadsheet application, such as the IBM Works word processor, the data might show up as unformatted text. Or, it might not show up at all, as in the IBM Works charting module.

The clipboard is also fairly reliable for transferring bitmap images with a color depth of 256 or less between applications that are dedicated image editors. A 256-color image can be cut and pasted from an OS/2 bitmap editor or image viewer (such as Colorworks, Galleria, Impos/2, or PMJPEG) to a Windows bitmap editor (such as PaintShop, PaintShop Pro, or Corel PhotoPaint). Most of the time, these images can also be successfully copied and pasted into Windows desktop publishing and presentation packages that support them, such as Aldus's PageMaker and Pursuasion, QuarkXpress, Ventura Publisher, and Microsoft PowerPoint.

Problems appear when you attempt to paste bitmaps with more than 256 colors or transfer graphic images through the clipboard into common OS/2 applications, such as IBM Works or Lotus's SmartSuite.

DOS Transfers

Data transfer to and from DOS applications occasionally becomes erratic when the Windows clipboard is made private and seamless Windows sessions are open on the desktop. Normally, when the Windows clipboard is private, DOS applications can transmit data to or from the clipboard that is shared by OS/2 applications. Occasionally, a DOS program, such as Novell's WordPerfect 5.1, can simply refuse to allow any data to be transferred through the Paste menu. If this happens, try closing any Windows sessions that have been configured for a private clipboard, or changing their settings to public sharing. Remember that the clipboard setting that is configured through the Win-OS/2 Setup object is overridden in seamless Windows sessions by the clipboard setting in each individual program.

Bitmap transfer workarounds

The best way to transfer a high-color image between applications is to save or export it to disk with the source application in a file format that can be imported by the target application. For example, you can place a 24-bit image into the Chart Module of IBM Works by using the Import Picture option on the File Menu. Images in a variety of formats are read effortlessly off the hard disk. The most widely (but not universally) accepted format that can handle this color depth is the tag image file format or TIFF. (with a *.tif* file extension).

Lotus Freelance Graphics for OS/2 is a bit more touchy. Although it claims to be capable of reading both TIFF and OS/2 bitmap (*.bmp*) formats, it will reject color images, or display them in muddy black and white. However, we found that Freelance has a natural affinity for the OS/2 Metafile (*.met*) image format, which supports both bitmap and vector images. We used Galleria and Impos/2 to convert a series of Kodak PhotoCD images, TIFF files, and OS/2 *.bmp* files to OS/2 Metafiles. We then used Freelance's Import (instead of Import Bitmap) feature to successfully place these images into a presentation. (Oddly enough, once a color image has been loaded into an open Freelance presentation, its color information is preserved when you copy and paste it into a second presentation. Evidently, Freelance makes better use of its own internal buffer than of the real OS/2 clipboard.)

Another SmartSuite application, Ami Pro 3.0b, has some interesting anomalous behaviors. Ami Pro has no trouble accepting 256-color or lower resolution images through the clipboard. It will also successfully load high-resolution images through an internal Import Picture option. However, attempts to copy an image out of Ami Pro and paste it into another application produce inconsistent results. When Warp is running in a high-color-screen mode, it won't work at all. When Warp is running at a 256-color depth, images copied out of Ami Pro paste to target applications as 256-color graphics, regardless of their original color depth. What's happening here?

A clue appeared when, with OS/2 in high-color mode, an Ami Pro 256-color image was copied to the clipboard and pasted into Galleria and Impos/2—it was reported as as an image with a color depth of 16 million! Apparently, some resolution information gets lost en route from Ami Pro to the clipboard. It's no wonder that less powerful applications crash or deliver out-of-memory messages when trying to accept this data. One way to solve this problem and copy graphics out of Ami Pro is to paste into a third-party program that can reduce 16 million color images back down to 256 colors, then copy and paste again to your real target application.

Another solution is to manipulate high-color images in Ami Pro with OS/2 Warp running in 256-color mode. But, if you take this route, you'll lose the extra color-depth when pasting to applications that can actually handle it. (Applications that address the clipboard correctly will simply generate out-of-memory messages when you attempt to paste high-color images, regardless of OS/2 Warp's active screen resolution.)

Vector Graphics

Encapsulated PostScript (*.eps*), Computer Graphics Metafile (*.cgm*), Macintosh PICT (*.pct*), Windows Metafile (*.wmf*), and OS/2 Metafile (*.met*) are some common file formats that are used to store line or vector graphics (the kind of drawings that are generally produced in Adobe Illustrator, Aldus Free-

Swap Space

If you plan to cut and paste graphic images through the clipboard, allow for at least 30MB of OS/2 swap-file space on your hard disk. It's not uncommon for the swapfile to grow even larger than this if you use the clipboard frequently. In general, don't attempt to cut and paste bitmaps with more than 256 colors, unless you have 32MB RAM and a really large swap file. We found that attempts to transfer a 320 x 200-pixel 24-bit graphic image through the clipboard failed every time on a 16MB RAM configuration—even when the swap-file partition had more than 100MB of free disk space.

hand, Micrografix Designer, and Corel Draw). The behavior of these vector images when transferred through the clipboard can be deceptive. The image might actually be displayed in the target application, but when you print, what you get is a bitmap preview image or even a blank page. Although applications like Freelance Graphics, Microsoft's PowerPoint, and Lotus's Ami Pro will accept vector images through the clipboard, you'll get much better results by importing these drawings directly through the program's internal file menu.

The chart module in IBM Works appears to be a special case. Although IBM Works claims to be able to import both *.eps* and *.wmf* images, they showed up on the screen, but refused to materialize on the printed page. When we pasted the same images into the Chart Module through the clipboard, they did generate some printer output, however, the images on the page were crude bitmaps—not the vector drawings that were created in the source applications.

This type of thing happens because some Encapsulated PostScript files, which contain primarily vector data, contain a low-resolution bitmapped preview image, which is often called a thumbnail. Some applications read only that thumbnail part of the image or only export the PostScript data to the printer or to other applications. Either way, the system is breaking down.

Third-party utilities

There is one drawback to the workaround of importing files directly off your hard disk when the clipboard won't behave itself. Simply put, you might not be able to save the image in a file format that is supported by your target application. No programs are bundled with OS/2 Warp, for example, that can convert an ordinary *.bmp* or TIFF file into an OS/2 Metafile that is suitable for importing into Freelance Graphics. And, what do you do if you have a TIFF file to transfer to a program that reads only *.bmp* or PC Paintbrush (*.pcx*) formats?

Several third-party packages allow you to convert bitmap and vector images to and from a variety of Macintosh, Windows, and OS/2 formats. They provide another solution for esoteric proprietary file formats; you can display an image in its supporting application and perform a desktop screen capture. This screen capture can then be copied to the clipboard or saved to a disk file in a more common format. Recently, *OS/2 Magazine* reviewed PMJPEG, a share-

Graphic file formats—more than you wanted to know.

The following list covers most of the major graphic file formats that you are likely to encounter (unless you are a graphics or multimedia professional). Where possible, we have listed the common file extensions, what the acronym means, who created the format, the resolution and color depths that are possible (as a maximum), what sort of graphic format it is, and any other information that might be relevant. Six basic format types exist (not all of which are covered here):

File Type	Description
Bitmap	An image is represented by pixels of varying size and color.
Vector	An image is represented by a series of points and the displaying software or hardware must be able to "connect the dots" in order to recreate the original image.
Metafile:	hyper-media links, jumps, text, graphics, and more can be included in the format specifications.
Animation	The format was designed to accommodate animated sequences.
Multimedia	The format was designed specifically for the transfer of multimedia data (which might include almost anything, including images and sound).
Scene description	The format was designed for the storage and transfer of rendering, ray-tracing, VR, movies, and other complex data. Keep in mind that just because a file has a *.bmp* extension doesn't mean that it is really a BMP format file. Anyone can give pretty much any extension that they want to a file, regardless of the file format.
.avi	This is actually a multimedia format based on RIFF, Microsoft's Resource Interchange File Format, which can handle multimedia at 24-bit color.
.bmp	The Windows and OS/2 bitmap formats. It's an uncompressed format that can handle up to 65,536 x 65,536 by 24-bit images. Currently, four variations of the BMP format that correspond to versions of Windows and OS/2 exist. Because IBM and Microsoft are no longer collaborating on BMP, the Windows and OS/2 formats will undoubtedly grow farther and farther apart.
.cgm	Computer Graphics Metafile is an ANSI/ISO standard metafile with unlimited resolution and color depth.
.dvi	Digital Video Interface, brought to us by Intel, is a multimedia format for real-time video in 256 x 240 x 16 million color windows.
.dxf	AutoCAD Drawing Exchange Format is an uncompressed vector graphics format that supports up to 256 colors and can include 3D information.
.eps	Encapsulated PostScript Format, or EPSF, was created by Adobe as a vector page-description language with unlimited resolution. Plain EPSF files contain only PostScript code, but bitmapped preview graphics are often stuck at the beginning of the file. The most common version of EPSF, called EPS, has a TIFF-format header

ware graphics-processing package and file-format converter ("The Esther Utilities," June 1995, p. 48). Impos/2 and Colorworks are both excellent commercial image-processing packages (August 1995, p. 55, and September 1995, p. 45); both won 1995 *OS/2 Magazine* Editors' Choice Awards.

Two other tools are worth keeping around. Galleria is a shareware utility that includes a bitmap image viewer, file conversions, and screen capture capabilities. It can open and save images in Windows and OS/2 bitmap (*.bmp*), CompuServe's Graphics Interchange Format (*.gif*), JPEG (*.jpg*), PC Paintbrush (*.pcx*) Targa (*.tga*), TIFF (*.tif*), WordPerfect Graphics (*.wpg*), and OS/2 Metafile *(.met)*. Support is also included for importing and displaying Kodak Photo CD images. Galleria also has a respectable number of post-processing features, allowing you to control RGB values, crop, enlarge, reduce, adjust brightness/contrast and increase or decrease image color values. The Galleria CM Screen Capture module can take a snapshot of the current OS/2 Desktop contents and copy the image to the clipboard, a disk file, or send it directly to the printer. Screen captures can be stored in any designated directory, and the file numbering can be set to increment automatically. The free trial version reads all supported formats and copies images to the clipboard; in order

File Type	Description (cont'd)
	bitmap. The FAT-imposed three-letter file extension often causes confusion between EPS and EPSF.
.flc, .fli	The Flic formats, from Autodesk, are designed for computer-generated or hand-drawn animation. The two main versions are FLI, at 320 x 200 x 64 colors, and FLC, with 65,536 x 65,536 x 256 colors (from a palette of 16 million).
.gif	CompuServe's Graphics Interchange Format is probably the most popular bitmap graphics file format and can handle 65,536 x 65,536 x 256 colors.
.jpg	The JPEG bitmap encoding methodology is named for the Joint Photographic Experts Group and can handle images from 65,536 x 65,536 x 24-bit color. JPEG itself is not so much a format as a set of five steps that are used to encode static graphics (color transform, down-sampling, discrete cosine transforms, quantization, and encoding). While each of the steps are performed in the same order each time, the particular methods that are used to accomplish each of the steps can change. JPEG is always a lossy proposition, because rounding errors in the color conversion and cosine transform steps cannot be avoided. JPEG is best suited to video stills or photographic or complex graphics. It is not well suited to animations, ray tracing, line art, black-and-white documents, images with large blocks of single colors, or typical vector graphics.
.met	The Presentation Manager Metafile format, which is supported by IBM, can handle both vector and bitmap in unlimited size and color depth.
.mpg	Named for the Motion Pictures Experts Group, MPEG is actually a group of standards that can handle multimedia at 4095 x 4095 x 24-bit color at 30 frames per second. MPEG-1 was designed primarily for storage and playback of synchronized video and audio from a CD-ROM, while MPEG-2 was designed for the television industry. MPEG can be hardware or software-based and playback resolutions and frame-rates are dependent upon the capabilities of the playback hardware configuration.
.pcd	Kodak Photo CD, Eastman Kodak's proprietary format, was designed to store multiple-resolution bitmap images on CD-ROM. It can handle images up to 2048 x 3072 x 24-bit color.

File Type	Description
.pct	PICT and PICT2 are Apple Macintosh metafile picture formats, which are fixed at 72 dots-per-inch x 24-bit. They are also known as Macintosh Picture, PCT, or QuickDraw Picture formats, they're common on older Macintosh applications and utilities.
.pcx	This old PC Paintbrush format, initially from ZSoft, is a bitmap format that can handle 65,536 x 65,536 x 24-bit color. PCX is used by some fax and clip-art programs. It's not well suited to deep-pixel images, such as scanned photographs or video.
.qtm	Apple's QuickTime multimedia format can handle 65,536 x 65,536 x 24-bit color images and sound.
.rtf	Microsoft's Rich Text Format is a metafile format that supports various resolutions at 256 colors. It's used to store and transfer formatted text files that might contain embedded bitmap graphics.
.tga	TrueVision's Targa Image File is a bitmap format that supports unlimited resolution at 32-bit color. It's particularly well suited to deep-pixel images with much color information per pixel. Unfortunately, it's compression algorithms don't perform well with noisy images, such as scanned photographs or still video images.
.tif	TIF, or the Tag Image File Format, from Aldus, is a bitmap graphic that supports huge resolution at up to 24-bit color depth. TIFF is one of the most flexible and universal image file formats available. But, because TIFF files are so customizable and can accommodate multiple compression schemes, some TIFF readers do not support all variations.
.wmf	Microsoft's Windows Metafile format was designed as a file interchange format for Windows, but it spread to other platforms. WMF files can contain bitmap or vector graphics and can be used at as bitmap headers in Encapsulated PostScript files.
.wpg	The WordPerfect Graphics Metafile format can handle any resolution at up to 256 colors (from a palette of over one million total colors). Created specifically for use in DrawPerfect and WordPerfect, the format supports bitmap, vector, and Encapsulated PostScript data.

—Guy Wright

to write files to disk, you must register your copy.

PrntScrn is the most sophisticated screen capture utility I've ever tested for OS/2. Unlike the other packages, it can preserve the shape and position of custom cursors and automatically take snapshots to a specified color depth. Although PrntScrn is not specifically an image editing, display, or conversion utility, it can import images to the OS/2 clipboard in *.bmp, .met, .pcx, .gif, .tif,* and ASCII text (*.txt*) formats. Unlike bitmap images that are copied to the OS/2 clipboard, images that are copied through PrntScrn retain their color content when pasted into applications, such as Freelance Graphics, but out-of-memory problems with color-depths over 256 are not resolved. PrntScrn does not contain the sophisticated post-image processing features of Colorworks, Galleria, or Impos/2, but it has the most complete set of screen capture options. Snapshots of all or part of the desktop can be transferred directly to the clipboard, sent to the printer, or saved to disk in three types of *.bmp, .met, .pcx,* and three types of TIFF, *.gif,* Macintosh PICT2, and *.wpg*. The unregistered trial version of this shareware product displays an advertisement for the company in the lower right-hand corner of every screen capture.

Lenny Bailes is a writer, teacher, and consultant in the San Francisco Bay Area. He can be reached at 70713,562.

RESOURCES:

Colorworks 1.1 ($495)
SPG Inc.
1505 Bull Run Rd., #303
Miami Lakes, FL 33014
(305) 326-6602
Fax: (305) 823-2753
READER SERVICE NO. 178

Galleria 2.2 (Shareware, $65)
Bitware Australia Pty. Ltd.
P.O. Box 3097
Manuka A.C.T. 2603, Australia
Fax: +61-6-2810175
CompuServe: 100033,340,
Internet: *bitware@ibm.net*
CompuServe: *galler.zip* in OS2AVEN Library 1
ftp://ftp.cdrom.com/.4/os2/graphics/galler22.zip
READER SERVICE NO. 179

Impos/2 1.2 ($99)
Compart Systemhaus GmbH
U.S. distributor:Indelible Blue
(919) 878-9700, (800) 776-8284
European distributor: NovaStar Software & Consulting GmbH
+41 821-441820, fax +41 821-443859
10042.3004@compuserve.com
READER SERVICE NO. 180

PMJPEG 1.63 (Shareware: $20)
Norman Yee
58 Chandler St.
Boston, MA 02116
CompuServe: *pmjpeg.zip* in OS2BVEN Library 1
ftp://ftp.cdrom.com/.4/os2/graphics/pmjpg163.zip
READER SERVICE NO. 181

PrntScrn 2.0.1 ($115)
Mitnor Software
28411 E. 55th St.
Broken Arrow, OK 74014
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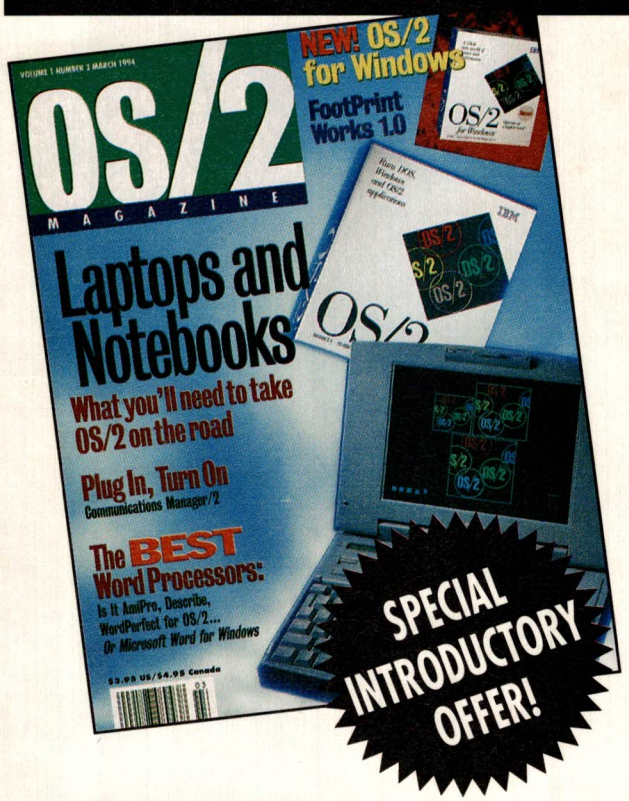
Fax: (918) 357-2869
READER SERVICE NO. 182

HARNESS THE POWER OF OS/2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Award-Winning Upgrade

DeScribe 5.0 and Voyager CD. BY KATHY IVENS.

The recently released DeScribe 5.0 word processor incorporates a number of new useful features and continues this package's trend of providing plenty of desktop publishing power. I was impressed with the power and richness of some of these tools, but disappointed with some of the interface paradigms.

Before I share some of the highlights of this upgrade, let me first state that this product is, obviously, a word processor. I will not waste your time by describing its basic word-processing functionality; suffice it to say that DeScribe 5.0 offers the usual functionality you'd expect in a mid-1990s word-processing package. Let's talk about where DeScribe exceeds or fails to meet modern-day expectations.

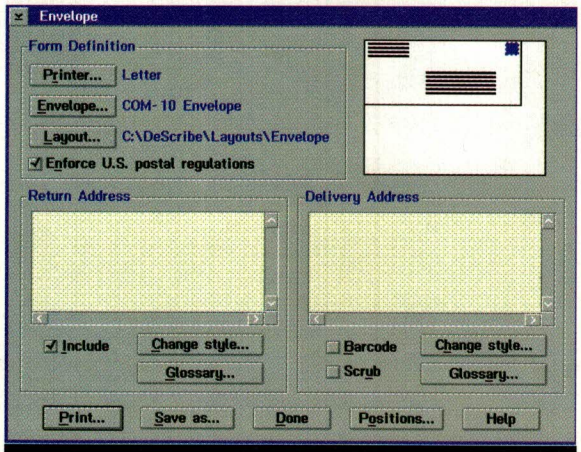

Figure 1: Envelope printing made easy.

New features

The things I normally look for in a word processor are available: easy formatting, bullets and numbered text, outlining, tables, columns, and end notes and footnotes. Incidentally, footnotes are new to this version—a long overdue feature.

Revision marking is a new function in DeScribe 5.0, which is useful in a number of business environments, and absolutely necessary for people like me, who write, get back revised edits and then want an easy way to tell the software to "ignore these edits."

The automatic glossary functions keep you from typing "teh" instead of "the" (I had to fake out the system to provide that example). The DeScribe glossaries are well-designed and robust. Several glossaries are available, including one for the current document, which is handy because you can use the same keystrokes for different replacement text strings. For example, you could set up "xx" as a shortcut for one phrase in one document and for another phrase in a different document. You can also link replacement text so that whenever the original text changes, the replacement that's pasted into the document when you enter the shortcut reflects the change.

I like the spell-checking options. Initial spell works in the background (hooray for multithreaded applications!), creates a list of questionable words, and presents the entire list in a window. For each entry, you can correct the spelling yourself, ask DeScribe for suggestions, or skip it. The spell checker goes through the document, showing questionable words in context with the interactive manner that most word processors use.

DeScribe offers a variety of add-on dictionaries for various languages, including British English. It also offers technical dictionaries for medical use (both British and American), legal, scientific, technological, biographical, and geographical. It also includes an add-in equation editor. Although some word processors, such as Microsoft Word, include an equation editor as a standard feature, we believe that DeScribe's decision to leave it as a $39 add-in is appropriate.

Other new additions include DeTours, the on-line tutorials, and DeNotes, on-line layout instructions. Undeterred by the cute names, I used these features and found them helpful. Another useful feature was the sticky note (similar to a 3M Post-It note). This device provides annotation or reminder functions (in bright yellow) on the screen.

As with any well done OS/2 program, DeScribe offers plenty of on-line help (presented with the familiar OS/2 appearance) and right-mouse-button functions.

Frames and styles

Frames are a primary concept in DeScribe, and documents can contain as many different frames as you have

features to fill them. Aside from the main document (a frame), each add-on produces another frame. Headers, footers, and graphics all exist in their own frames. I found it easy to create, link, and duplicate frames as I developed documents. It even allows a fairly simple process for creating left and right frames, so you can have text, headers, and footers that appear correctly for double-sided printing. You can create frames on top of frames, producing some interesting graphics. And, something I haven't seen in any word processors, is a stretch-frame function, which adjusts a frame automatically to accommodate the contents.

Styles are one of the hallmarks of DeScribe and they've been enhanced so that you can copy a style from one document to another. You can even drag and drop a style.

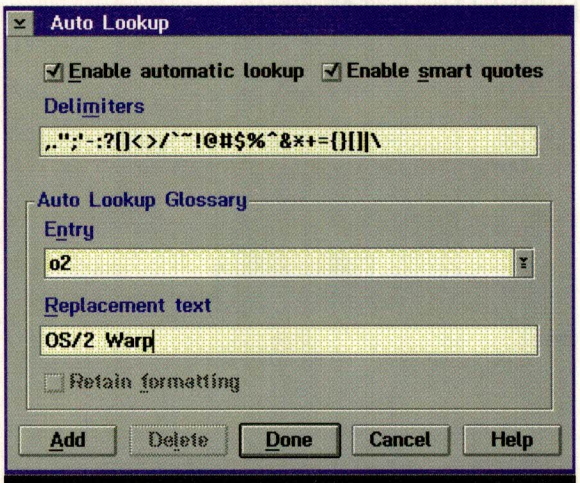

Figure 2: Auto Lookup, or preemptive spell checking.

Envelopes and merging

DeScribe sports a new interface for mail-merges that consists of a series of windows that provide step-by-step instructions and walk you through the procedures, using a data-entry screen system that makes it seem as if you are filling out an easy-to-use database.

I also liked the new envelope features, which let me design the layout I wanted and save it, showing me a graphical preview as I made changes. In fact, the handling of envelopes altogether is quite well designed. Selected text automatically becomes the text for the delivery address. A bar-code function exists and inserts the right characters with a click of the mouse. There's an interesting "scrub" feature that cleans up the delivery address, eliminating any extraneous (non alphanumeric) characters and converting the text to upper case.

You can attach envelopes to documents, and, more importantly, you can attach envelopes to layouts. I was able to define a layout for personal correspondence (using stationary that is smaller than standard correspondence size) and attach an envelope that matches the specific size of my personal stationary envelope. Whenever I used the personal stationary layout, I could print the matching envelope without further configuration—pretty handy.

I tested the software by creating letters (with envelopes attached), reports, and graphic documents that would qualify as sales pieces. In each case, I found the software's feature set to be up to the task, providing tools that let me complete the document with dispatch.

File handling

I found some unique choices that turned out to be valuable, especially on the File menu. A Copy To option let me copy a document, which I'd been saving on my hard drive, over to drive *a:* (or, I could have saved to a different directory on my hard drive). This function is unbelievably useful and a much more practical approach than other word processors provide by forcing the use of Save As, thereby setting up a new default path and filename for the document.

The Shred option let me close and delete a document. This feature is one of the handiest I've run across and it solves an enormous problem for most offices—hard disks packed with files that will never be used again. When many of my memos are written, saved, checked, and printed, they're useless. The odds that it will ever be reprinted are remote—at best. I spent years warning clients that a hard disk is not a safe or convenient file cabinet, and insisting they make hard copies of letters for the filing cabinets and delete the copies on the computer. In order to implement this, offices have to allocate time for computer disk housekeeping. This option makes all of that easy and convenient. In addition, an Unshred option corrects erroneous shredding.

Plenty of import/export choices for text and graphics are included. And, I had no problem moving either file type into a DeScribe document. I saved a DeScribe document in both WordPerfect and MS Word, choosing WordPerfect 6.0 and MS Word 6.0 as my export formats.

Exporting a file to a different format is a separate File menu option (as opposed to using Save As), and interestingly, when I loaded my exported files into the two word processors mentioned, only Microsoft Word indicated that it was doing a conversion during the load process. WordPerfect happily brought the document up without any indication that it was originally prepared in a different software application. When I saved the document in the new word processors, Word informed me that the document was in Microsoft Word for DOS 3.x format, and asked if I wanted to save it as a

Word 6.0 for Windows document. WordPerfect asked no questions and performed the save. In both cases, the basic text formatting (bold, italics, centering) were retained.

Interface issues

DeScribe 5.0 has some annoying interface issues. Some functions fail to follow generally accepted protocols or user instinct. For example, when saving a new document for the first time, Save on the File menu doesn't work the same as Save As. In fact, Save is grayed out. While this problem isn't onerous, it is bothersome. (The Save icon on the toolbar works properly, however, which I find rather inconsistent). Many people who spend a good part of their day working in a word processor, find a way to create shortcuts for repetitive tasks, such as saving a document. With all the other word processors I've used, I can usually take a keystroke shortcut (usually <Ctrl+S>), a longer method <Alt+F+S>, or I can write a macro. Because you can't always use Save, such shortcuts won't always work. In my opinion, the keyboard is the input device of choice for word processors, and the presence of an icon on a tool bar that requires you to reach for the mouse isn't instinctive or productive.

The way you move in and out of an area of selected text is neither intuitive nor logical. You cannot highlight text, perform an action, and then use an arrow key to move out of the text. You can't even click the mouse pointer on another portion of the document and move there. You have to press <Esc> (which takes you to the beginning of the selection) or re-click on the highlighted section and then move to your destination, which is extremely counterproductive.

Features aren't always found where you expect them. When I needed to perform a Search, I looked in the Edit menu, which is a perfectly natural and intuitive thing to do. Search is not located there. It was placed in the Words menu. In fact, the menu bar has more entries than any other software I've used and it's sometimes difficult to figure out which pull-down menu would logically (or illogically) hold a given function. You must either have a good memory or spend much time searching.

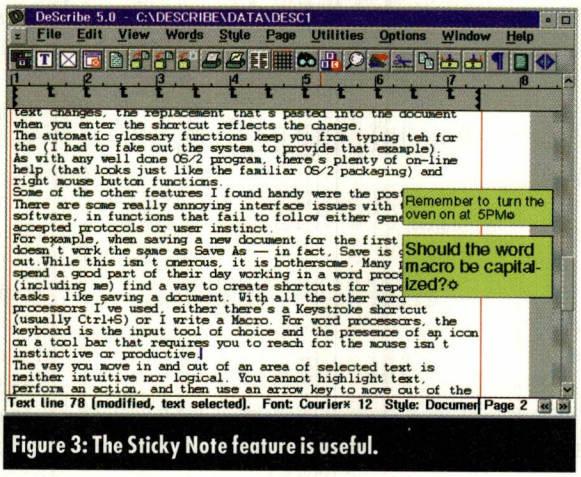
DeScribe 5.0 - C:\DESCRIBE\DATA\DESC1
File Edit View Words Style Page Utilities Options Window Help
Remember to turn the oven on at 5PM
Should the word macro be capitalized?
Text line 78 (modified, text selected). Font: Courier 12 Style: Documer Page 2

Figure 3: The Sticky Note feature is useful.

Learning the conventions and interface functions of any software package is simply a matter of use. DeScribe 5.0 offers plenty of power to make it worth the effort for anyone who needs the features that are packed within it. We highly recommend this word processor.

VOYAGER CD

DeScribe 5.0 ($159) comes in two different packages. The normal full-feature package, as reviewed above, comes with telephone and fax technical support (non toll-free), and full functionality on a network. Unfortunately, DeScribe offers no money-back guarantee for any of its products.

The package I tested is the DeScribe Voyager CD-ROM, which uses a different model for distributing software. It's a $50 book, published by a third-party publisher (Que) with a CD-ROM. Voyager does not read or write to network drives (although it'll print on network printers) and does not comes with telephone technical support. Interestingly, Voyager includes not only the OS/2 version of DeScribe 5.0, but versions for 16-bit Windows 3.1, 32-bit Windows NT, and Windows 95 as well. This makes Voyager an outstanding value for dual-boot environments. Despite some initial confusion in the market, DeScribe says that Voyager has no expiration date, and does not require registration with DeScribe Inc. in order to turn on its full feature set.

Both Voyager and DeScribe 5.0 are supported on CompuServe in DeScribe's section of the PCVENA forum (section 15), as well as on Prodigy in the OS/2 Club. You can also purchase this software at retail outlets. That version includes registration instructions for receiving support from DeScribe.

Based on the Voyager's functionality and value, *OS/2 Magazine* gave it a 1995 Editors' Choice Award (see October 1995, p. 24).

Kathy Ivens is a computer consultant and writer in Philadelphia Pa. She has written a number of books, including several on OS/2, and is a frequent contributor to several national publications.

RESOURCES:

DeScribe Voyager ($49)

DeScribe 5.0 CX ($159)

DeScribe Inc.
4820 Bayshore Dr., Ste. D
Naples, FL 33962
(813) 732-5500
Fax: (813) 732-5414
71333.154@compuserve.com
READER SERVICE NO. 183

Creating CD-ROMs from the Desktop

UNITE CD-MASTER. BY GUY WRIGHT

The computer world is being taken over by CD-ROMs. OS/2 users have long known the value of CD-ROM (especially if you ever installed OS/2 from floppies). Just about every major piece of software these days comes on CD-ROM as well as floppies and some software is only available on CD-ROM, such as the Hobbes shareware disc. But, did you ever wonder how they manage to produce those discs in the first place? Back in the early days of CD-ROM, say six or seven years ago, if you wanted to produce a CD-ROM, you usually backed up the information onto tape and sent it off to a CD-ROM duplication house. There, they would produce a single disc, send it back to you for testing, and, if everything worked the way you hoped, you would tell them to start mass production. If the disc didn't work you went through the whole process all over again. If you happened to have a hundred thousand dollars lying around, you could buy a machine that could produce (or burn, to use the CD-ROM parlance) single discs. The machines were expensive and the blank discs (called gold discs, because they are actually made with a very thin layer of gold) were also very expensive.

In the early 90s, companies, such as Yamaha, Kodak, and Sony began manufacturing inexpensive CD-ROM burners or CD-Recorders (CD-Rs). Like any part of the computer industry with high competition, the prices of CD-Rs began to drop radically until today, when you can purchase a CD-R unit for under $1,500 and the blank gold discs cost less than $10 each. You might think that you can just run out, buy a CD-R, and start burning discs this afternoon, however, there is a catch—one of those good news bad news type of things. The good news is that when you make discs that adhere to CD-ROM standards, which were established by ISO (International Standards Organization) back in the mid-eighties, it means that any CD-ROM player can read any CD-ROM disc—just as any 3 1/2-inch floppy disk can be formatted and used by any 3 1/2-inch floppy disk drive. (Of course, that doesn't mean that the computer that reads the information can understand the programs on the disc, just as PCs don't understand Macintosh files and vice-versa.) The bad news is that the ISO standard for CD-ROMs specifies a completely different file and directory structure than those used by most computers.

You might think that you can just run out, buy a CD-R, and start burning discs this afternoon, however, there is a catch.

To put information on a CD-ROM in ISO format, you need software to translate your files and directories from HPFS or FAT into ISO. That software is usually called premastering software, which is where the Unite CD-Maker from Cirrus Technology comes in. Up until now, if you wanted to create an OS/2 CD-ROM, you had to use one of the premastering packages for DOS, Windows, Macintosh, or UNIX, as there simply weren't any packages available for OS/2. (Producing an OS/2 CD-ROM on a Macintosh might seem odd, but it isn't as difficult as it sounds. See sidebar.) The Unite CD-Maker package is the first native OS/2 program that allows you to take files and record them directly to a CD-R.

The program is designed to work completely from the desktop. You simply drag and drop files to create a list or index of programs, and, when you are ready to burn a disc, the program takes over. It translates everything into ISO-compatible files and directories and records the information to any of a number of CD-Rs. Another advantage to the program is that it will let you use the CD-R as a normal CD-ROM drive (something that isn't usually supported with normal OS/2 CD-ROM drivers).

Even though the program is designed for CD-ROM, it comes on two floppies with a slim 26-page manual. Installation is quick and painless and the manual, while a bit sketchy, does convey just about all the information you will need to start burning discs.

The program works entirely through templates and settings notebooks. Once installed, you have a new folder with three icons: a stage template, CD Burner, and drives. The drives icon contains shadows of all your drives from which you drag and drop the files that you want to include on the disc. The burner icon represents your CD-R. Currently, Unite CD-Maker supports the Kodak PCD Writer 600, Philips CDD522, Ricoh RS-1060C, Sony CDU-920S and CDU-921S, and the Yamaha CDE100 and CDR100 units (by the way, all of these units are SCSII devices). By open-

ing the CD Burner Settings Notebook, you can specify the recording speed, mode, buffer sizes, and other settings. The Stage template is where most of the work happens.

You start by dragging a new stage template to the desktop, or to a folder, and renaming it. You then open the Settings Notebook for the new stage and fill in the necessary ISO information, such as volume, name, publisher, and so on. You then simply start dragging and dropping files from the drives onto the stage template until you are finished. The files that you add to the stage are, in fact, only shadows of the actual files with pointers to their locations. As you add files to the stage, a window tells you how much of the disc space has been used and how much free space is left. At this point, you have a choice whether to create a "virtual image" or burn the image "on the fly." A virtual image (other pre-mastering packages sometimes call this a real image) is a complete set of all the files copied into one large directory. It requires that you have enough free disk space to contain copies of all the files that you have added to the stage. The advantage to creating a virtual image is that the software can usually perform faster when all the files are located in one place, rather than having to search all over your disk drives for the files. It can also mean faster recording speeds when it comes time to burning the disc. To create a virtual image, simply right-click on the stage icon and select Build virtual image.

If you don't have much free disk space, you can try burning on-the-fly, simply by dragging the stage icon onto the CD Burner icon. This process requires that you have a fairly fast system, including hard disk drives, SCSII bus and processor (sorry, network files will have to be downloaded to a local hard disk). Fortunately, Unite CD-Maker defaults to test mode when you try to burn discs, which will let you know if any problems will occur during a real burn. Cirrus (and I agree with them) strongly recommends that any time you create a new stage, you try burning in test mode first to make sure your system is capable of producing the disc without buffer underruns. (A buffer underrun occurs when the system cannot supply data to the recorder fast enough. Because recorders, once started, cannot stop or slow down at

OS/2 CD-ROMs, Chickens, and Eggs

We have all seen OS/2 CD-ROMs out there (OS/2 itself is available on CD-ROM). The question is: if CD-Maker is the first OS/2 pre-mastering package available, how did those people create all the other OS/2 CD-ROMs over the past 5 years? The answer lies in the ISO standard itself.

The ISO 9660 standard for CD-ROM is an outgrowth of the CD-Audio standard and has gone through many modifications and additions since its adoption in 1985. While the standard insures that any CD-ROM can be read by any CD-ROM reader, it does have limitations. First of all, ISO 9660 interchange level 1 will only accept filenames in the traditional eight-dot-three format (eight characters, the period, and a three-letter extension), and can only accept uppercase letters A to Z, numbers 0 through 9, the period, and the underscore. It also supports a maximum of eight levels of subdirectories. Those of us who are used to OS/2 and long filenames are bound to find these restrictions somewhat limiting. (ISO interchange levels 2 and 3, designed for Macintosh and UNIX platforms, do not have these same restrictions.)

Another advantage of the ISO standard is that ISO doesn't really care what the operating system is, because translation to and from ISO is handled by software. This means that your pre-mastering platform doesn't have to be the same as the target platform. As long as you can get the files into the system, the software can turn it into ISO. So, you can use a DOS-based package to produce CD-audio, Windows, Macintosh, UNIX, CD-I, 3DO, and even OS/2 discs (assuming that the package is flexible enough).

So, all those OS/2 discs that you have seen up to this point were actually produced on a DOS, Windows, Mac, or UNIX system. This fact, however, is more than just an interesting tid-bit. It means that you don't have to rely on an OS/2 pre-mastering package to produce OS/2 discs. If you have a different platform available that can recognize your OS/2 data, you could just as easily produce discs there and they would work just as well. If you are a developer or need more control over your CD-ROM burning process, your options are not limited to OS/2 packages. However, there are a few gotchas.

First, the software must be able to "see" your data (most DOS and Windows programs can see OS/2 data, especially if you are using the FAT file system). Second, because the burning process is fairly I/O intensive and tends to push your system to the limit, you might not be able to run the software in a Win-OS/2 or DOS session (even the slightest amount of performance degradation can ruin the burn). Third, many packages will not work over a network. Fourth, you should not use disk compression utilities (again, even the slightest delay in decompression can ruin the burn). Most of us who burn discs have our own requirements (must work on a network, must be able to do CD-Audio, must have incremental writing capabilities, support for long file names, and so on), so shop carefully. Finally, most professional pre-mastering packages are much more difficult to learn and use. By the time you have mastered them, you will probably have ruined a handful of discs.

On the flip side. Any disc that was created in an OS/2 environment with Unite CD-Maker should work fine in a DOS or Windows environment. When more sophisticated packages are available for OS/2, you should be able to create just about any kind of disc for any kind of platform—without ever leaving OS/2.

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any point during the burn, the buffer must always have enough data or else the burn will fail, the blank disc will be ruined, and you will have just created a nice shiny gold-plated $10 coaster.)

Unite CD-Maker is very easy to install, learn, and use. It is smoothly integrated into the workplace environment and performs very well, but it does have a few drawbacks. First, in order to adhere to the ISO standards (which does not support extended filenames, special characters, or deep directories) the program must alter any file names that don't meet the ISO requirements. The program does this job for you automatically, creating a list of all the name changes. You can specify that the program show you these changes, but you can not substitute your own name changes. You can either accept the changes that the software makes or abort the operation. Second, Because all of the files that are dragged onto the stage are shadows, you cannot sort the list in any meaningful way while creating stages, which can get a little confusing when you have many files. Finally, it is not a full-scale program for CD-ROM developers who usually require more control over the burning process, such as changing your own file names or using different ISO interchange levels (which can support long filenames). These problems are not major (unless you have dozens of long file names or programs that specifically look for files with long names or names that contain non-ISO characters, such as &, $, or -).

While Unite CD-Maker lacks many of the features that are included in other professional pre-mastering packages (on other platforms), such as the ability to rename files yourself, set the ISO interchange levels, support for other ISO standards, or support for multisession recording, most users will never need these advanced features. If you need to (or simply choose to) remain in an OS/2 environment, Unite CD-Maker is the current logical choice (Electroson has announced an OS/2-based pre-mastering package, which should be available by the time you read this article). Because CD-Rs are so sensitive about data throughput and system performance, I would not recommend trying to run other platform packages in OS/2 sessions. (In fact, you probably don't want to do any multitasking—even with Unite CD-Maker.) While it might seem as though, once again, OS/2 users have to settle for an inferior product, that is not the case. It might not have all the advanced features (that most casual users will never need), but it more than makes up for it with its ease of use and elegant Workplace integration. You won't have to become a CD-ROM expert to use this program.

Overall, the program is ideal for 95% of the OS/2 users who wish to create CD-ROM discs for backups or internal distribution of files and could be used by developers who do not require advanced controls. It is simple in operation and performs well. A good product, even in its first release. (Hopefully, subsequent releases will support other ISO interchange levels and multisession recording).

Finally, we have an OS/2-based pre-mastering package for the easy creation of CD-ROMs and, thankfully, Unite CD-Maker is a good solid product.

Guy Wright is the former executive editor of OS/2 Magazine. He has moved on to become CD-ROM business development manager for Miller Freeman. We'll all miss his brilliant insights, cheerful enthusiasm, optimistic attitude, and keen sense of humility, but we can take some comfort in the knowledge that he will still be working at MFI, if not for OS/2 Magazine.

RESOURCE:

Unite CD-Master v.1.0 ($249)
Cirrus Technology Inc.
5301 Buckystown Pike
Frederick, MD 21701
(301) 698-1900
Fax: (301) 698-1909
READER SERVICE NO. 186

Charts and Graphs

SciLab's XACT 3.20f. BY ESTHER SCHINDLER

Sometimes, raw numbers just don't cut it. Your tables of statistics looks like, well, just a table of numbers, instead of the clear evidence that your department deserves a bonus or that your scientific experiment was an obvious success.

If that's the case, reach for SciLab's XACT. XACT turns raw data into attractive graphs and charts. XACT isn't a presentation graphics application like Freelance or PowerPoint; you won't find slide show capabilities or bullet charts. XACT just creates graphs and charts.

Working with data

The simplest way to create a chart is to enter data into XACT's spreadsheet-like tables. You can also import data from 1-2-3 (*.wks* through *.wk3*—not including 1-2-3 for OS/2 *.wg2* files), Excel, comma or semicolon-delimited files, dBase, DIF, Lotus Symphony, XACT's own table format, or print files. Mesa 2 and IBM Works formats are conspicuously absent from the import list, though I could cut data from a Mesa 2 spreadsheet and paste it into XACT. XACT can import ASCII files where the columns are separated by spaces. This welcome feature let me import several text file charts that I downloaded from CompuServe.

It's fortunate that there are so many ways to bring data into XACT's tables, because you won't enjoy editing and moving the data around once it is in there. It's impossible to mark a group of cells and move them one column to the right. Editing individual cells is so awkward that you'll probably just backspace and retype the data, as I did.

Unlike most charting packages, XACT can perform statistical functions

XACT REVIEW, *cont'd on p. 58*

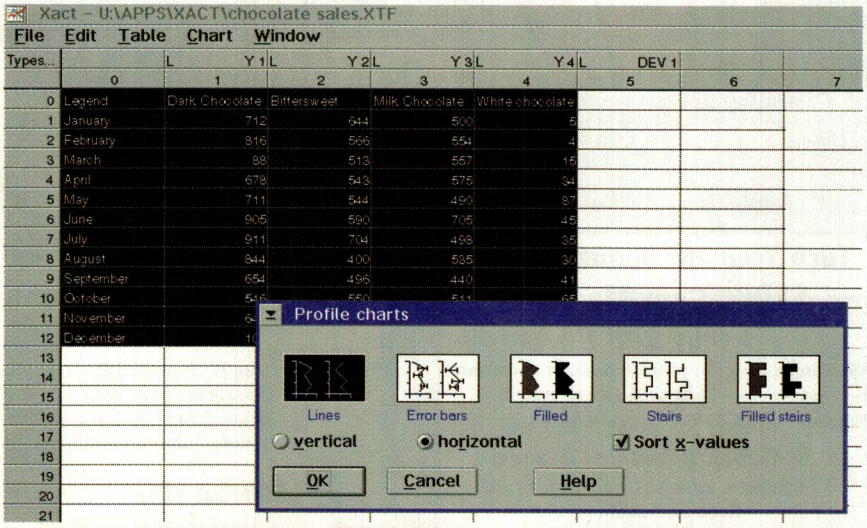

Figure 1: XACT1.TIF To create an XACT chart, you select the data and choose the chart type. You can modify most of the graph options later on, if you decide to customize the graph.

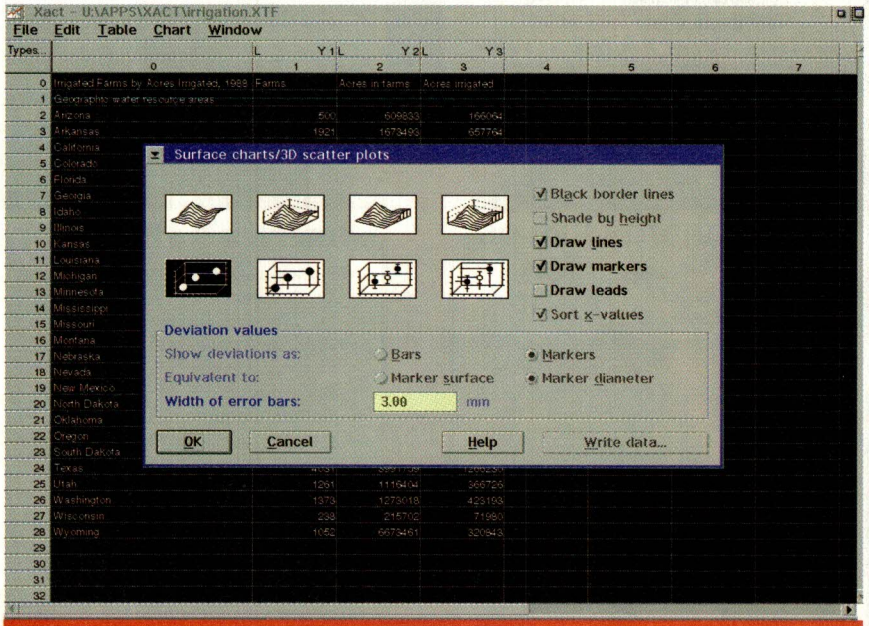

Figure 2: XACT3.TIF XACT provides an impressive number of chart types and statistical functions, with several options available for each graph type.

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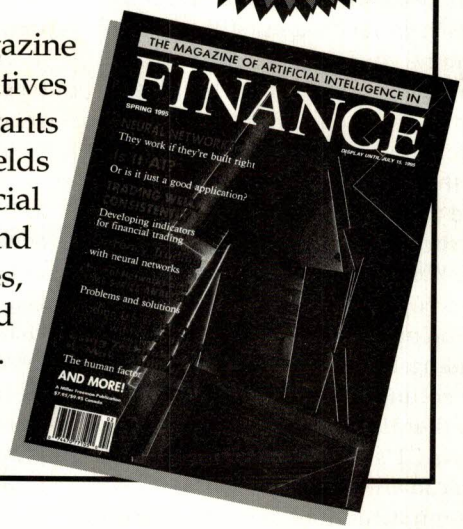
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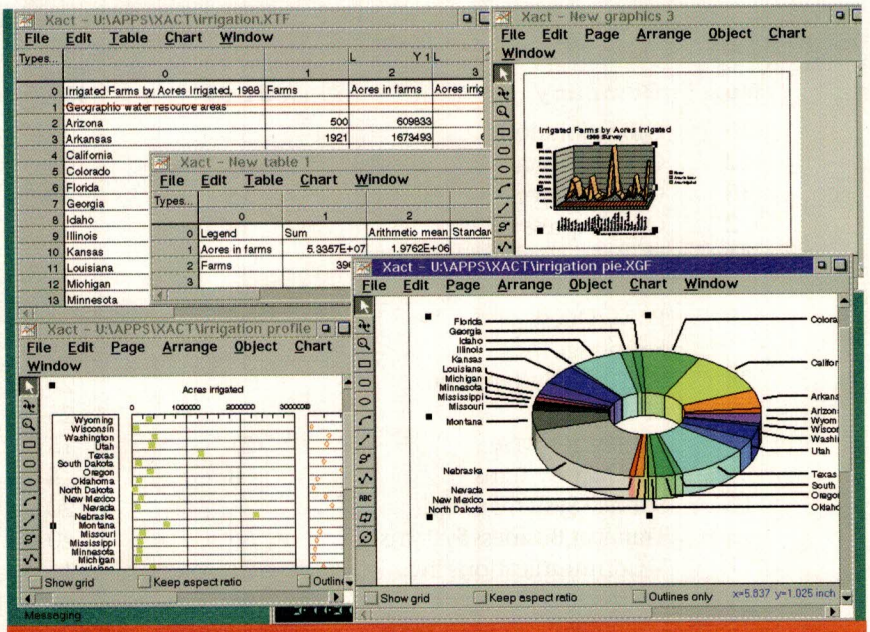
Xact - U:\APPS\XACT\irrigation.XTF
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File Edit Page Arrange Object Chart Window
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File Edit Page Arrange Object Chart Window
Xact - U:\APPS\XACT\irrigation pie.XGF
File Edit Page Arrange Object Chart Window
Show grid
Keep aspect ratio
Outlines only

Figure 3: XACT4.TIF You can annotate your XACT graphs with text and graphics. Once you create a style you like, you can save the fonts, graphics, layout, and colors in a reuseable style sheet.

XACT REVIEW, *cont'd from p. 56*

and create histograms based on the data you select. XACT puts its generated data in a separate table, which you could use to create additional charts. Statistical functions include everything from standard deviations to harmonic means; they made me wish I'd paid more attention to my high school Statistics teacher and less attention to the guy sitting next to me in class. I didn't explore XACT's statistical features in great detail, but if you want to examine your data as well as chart it, you'll find at least some value here.

XACT will make its best guesses at which table columns should be used for the X, Y, and Z axis, but you can (and for complex graphs, you probably should) make these choices yourself. You specify the axis and the column position by clicking the mouse button on the right side of the column heading. If you click on the left side of the column heading, you'll change whether this data should be charted on XACT's left or right axis system. You can also make changes to several column definitions at a time, using a dialog box. Columns can also be defined as one of three deviation types: dual direction, only positive, and only negative deviations; these can be used for error bars or measurement tolerances.

Working with charts

Once you have defined your column types (or decided to let XACT use its defaults), you're ready to create a chart or graph. XACT provides a stunning variety of chart types. Once you take a look at the range of available chart types, you'll forget any minor annoyances you encountered with XACT's table features.

For mere mortals who simply want to make the department budget look better (or at least prettier), XACT provides 10 types of line and ribbon graphs, 10 kinds of bar graphs, six pie-chart formats, and four kinds of text table charts. Most of the chart formats are so clear and attractive that, for general business purposes, you could just print them at this point, and take them to your two o'clock meeting. The table charts are nothing to write home about, though. If you need to produce these often, you'll be happier using your word processor.

XACT also supplies quite a few fancier graph types. You can create several kinds of 3D line graphs, surface charts, scatter charts, profile charts, polar charts, contour plots, and 10 "special" charts including portfolio and filled spiders. Stock-market hi-low-close charts are not included.

You choose the graph type from the menu (an OS/2 notebook would be far better here), and specify a few options. XACT creates a separate window for each chart, making it easy to work with several charts at a time. One minor weakness in chart creation is that, when choosing a chart type, you have no idea what column types are required. The program creates the (empty) chart window before it tells you that you need at least one Z column; I wish the program gave me a clue what information it would need before I got that far, especially for the more arcane chart types.

XACT provides several ways to enhance your charts. You can change fonts and colors for every object on the screen, add titles and captions, and perform all of the other basic, expected enhancements. XACT also lets you change the 3D perspective on graphs, to make it seem that your viewer is "looking down" at the graph, even on a simple bar chart. Every chart type has options associated with it; for example, on some line charts, you can tell XACT to forecast the data using polynomial regression.

The depth of customization was impressive in most areas and surprisingly thin in others. For example, I couldn't set the angle at which text on the X-axis was displayed. The chart does not automatically redraw if you change the data in the table; there's a Recalc option, but if you change the chart layout in certain ways (such as using a workaround to change the text angle), you'll lose your customization when you Recalc.

Annotating the graph with text or graphics is straightforward. You use a suite of drawing tools to add text, lines and arrows, and filled or empty shapes. The drawing tools won't tempt you to trash your copy of CorelDraw, but you'll be happy to discover that you can use XACT's "multiple duplication" to change the size and color of gradient-shaded objects. You can also import bit-mapped graphics, though the import choices are slim: XACT's own format, or OS/2, Windows, or GEM metafiles.

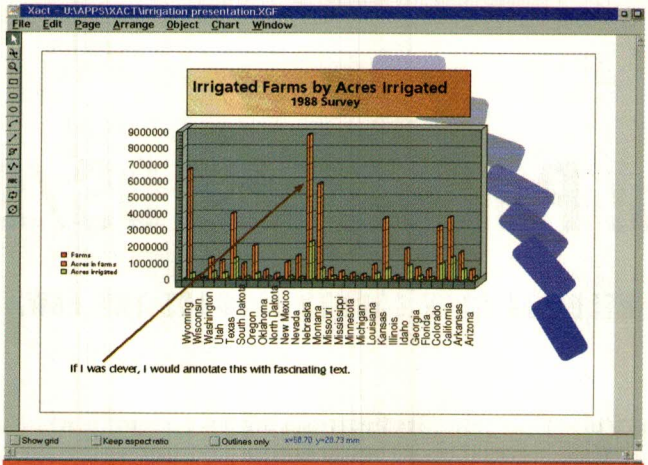

Figure 4: An example of how easily you can create a useful graph with minimal graphic skills.

If you have taken the time to establish a "look" for your documents, you will probably want to save your set of fonts, colors, and so on. XACT lets you use or create style sheets so that you can reuse your presentation style. Six attractive style sheets are included; those of us who are artistically challenged would have liked more.

You can print from XACT; the program has good color and black-and-white support. However, you're more likely to want to use charts and graphics in other, larger documents, so the program's ability to export in a variety of formats is important. You can export in 14 formats, including encapsulated PostScript, *.tif*, and *.pcx*. It has a few strange omissions, however; for example, you can export your chart in Adobe Illustrator 88 format, but not *.gif*.

Working with OS/2

When measured on my "OS/2-o-meter" scale—how OS/2-like is this program?—the needle flashes up and down erratically. In some ways, XACT is an excellent example of OS/2 programming. It's fast and spunky, and I never had to wait for it. I really like the separate session windows for each graph or table, as opposed to being bound by an arbitrary container "desktop." XACT uses REXX as its macro language and (though I didn't delve into the details) seems to do a good job at it. One of its sample macros is a REXX program that automatically charts and graphs the disk use of your *c:* drive.

In other ways, XACT's OS/2 integration is a disappointment. The program violates the OS/2 user interface in a few unexpected ways, such as putting the parent directory ".." in a box on top of file dialogs. The right mouse button is almost ignored. In the table view, clicking on the right mouse button excludes a row from inclusion in a graph (a function I couldn't find on the menu bar) instead of providing a pop-up menu. The OS/2 notebook paradigm would work extremely well in XACT, and it would be particularly nice if style or chart type changes took effect immediately rather than after I chose "OK." These are minor problems, in the grand scheme of things, but they're irksome if you're used to OS/2's conventions.

In several months of use, I found that XACT 3.2 has a tendency to crash by folding up and quietly going away; I learned to save my files often. The Help facility is only so-so. It isn't useless, but I was left uncertain far too often.

XACT 4.0 is expected to be released by the time you read this review, and SciLab promises to address many of the imperfections I found. Features in the new version will include Undo (completely lacking in this release), a redesign of the table management, and faster graphics support.

Summary

Despite XACT's weaknesses, it's still a really neat program. The good points are so good that they counteract its occasional failings. XACT shows signs of evolving into a truly splendid application. I spent hours playing with graphs and fiddling with numbers. I was able to create impressive output even though my artistic graphics talent might be described, rather generously, as "hopeless." If you need to create business or technical graphics, take the time to check out XACT.

Esther Schindler is a computer consultant and writer. She is a contributing editor to OS/2 Magazine, the sysop of the Ziffnet Executives On-line forum on CompuServe, and coauthor of Teach Yourself REXX in 21 days, from Sams Publishing. You can contact her at 72241,1417@compuserve.com.

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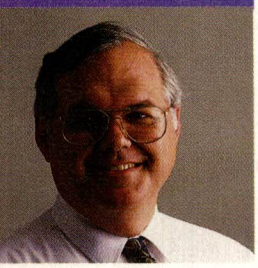

Help! Police! It's OS/2!

HOW OS/2 HELPS FAIRFAX COUNTY ENFORCE THE LAW.

BY WAYNE RASH, JR.

You're sitting at an emergency dispatcher's terminal in Fairfax County, Va. when somebody calls 911. Your screen flashes the name of the caller and their address. On a second screen, you can see the complete list of emergency units that are available. As soon as you get the information about the problem, you're ready to double-click and dispatch a police car.

There's more! While the police officer is on the way, you send additional information about the address to a remote terminal in the police car. When the officer arrives at the scene and begins relaying the status of the emergency, you can see the event unfold, even to the point of seeing which officers are out of their cars and communicating with hand-held radios.

Sound like science fiction? In fact, it's current technology. Emergency service workers in Fairfax County are learning to use their new OS/2-based computer-aided dispatching system in ways that make services more readily available to citizens, while making the jobs of police, fire, and rescue workers more efficient. In the process, they help to save money and solve crimes more effectively than ever.

Emergency dispatching

Emergency service dispatching is probably the definitive example of a mission-critical application. If you don't get it right, people die. For this reason, PRC Inc. of McLean, Va. chose carefully, making sure that Fairfax got a system on which peoples lives could depend. Its heart is a legacy system based on a Digital Equipment Corp. minicomputer that runs DEC's VMS. A cluster of OS/2 workstations that run PRC's emergency services software supports the dispatchers.

PRC uses a client/server system that replaces an older terminal-based system. By moving to client/server, PRC can provide a system that delivers high reliability, considerable local processing power, and a substantial improvement in productivity, while preserving the remainder of the proven infrastructure. Until they can implement an even more advanced dispatching system, PRC is delivering dependability and productivity.

The Fairfax dispatching system is very similar to the system that PRC installed in Boise, Id. and in localities around the country. These systems use personal computers to replace the old terminals. The computers communicate with a central computer through a TCP/IP-based network. "This reduces the load on the main computer dispatch system," explains Michael Fischel, Director of the Fairfax County Public Safety Communications Center. According to Fischel the new system, which is still in the implementation stages in Fairfax, will help police dispatchers a great deal.

Communicating with OS/2

The need for solid reliable multitasking drove PRC to choose OS/2. According to senior project advisor Forrest Nutter, true multitasking was necessary because a number of communications processes had to take place in the background while users were entering information on the screen. "We're tied in to automatic telephone number and location identification from the phone company through the server," Nutter explains. While information is sent to the server by users, the server is also providing confirmation of this information to the workstation. Nutter also explained that TCP/IP socket-level connections are used to communicate with the network and the central server. Because of the volume of information and the need for immediacy, OS/2's ability to multitask has made a big difference.

PRC's success is due, in part, to the development environment that the company uses. This environment is a package of communications-rich tools from Neuron Data Inc. of Mountain View, Calif. These tools, which are designed to produce critical applications in a communications-oriented environment, support the graphical applications that are needed by Fairfax and the other jurisdictions that are serviced by PRC.

Mission critical

It's hard to find a mission more critical than life or death, but the fact is that many businesses need the kind of dependability that PRC is delivering to Fairfax County. It is unlikely that lives would be lost if your business went under, but your mission is still critical for the life of your business, and applications must fit in well with the enterprise computing environment of the organization. In the case of Fairfax County, police protect the lives and property of approximately 900,000 cit-

izens in the Washington, D.C. area. In a county that large, police must have the flexibility to respond to a variety of circumstances. They need information and they need it fast.

To fill this need, Fairfax outfitted its patrol cars with data terminals several years ago. These terminals were originally connected by a wireless data link to a central computer. While dispatchers worked at text-based terminals, sending instructions to the police cars, officers in the field could request information and access the central computers. This system is slowly evolving. First, the county put in a link to the state motor vehicles division that allows officers to access driver and vehicle license files directly. This development led to a sudden improvement in the recovery rate of stolen vehicles. Links to other crimefighting computer systems were added, but one problem remained. The old text-based terminals only did one thing at a time, and they did it slowly. The county knew it needed to fix something.

"The days of the non-intelligent terminal are over," Fischel noted, explaining why the new dispatching system is so important to the county's public safety effort. "We knew they were no longer a viable technology.

Currently, Fairfax's new dispatching applications run on DEC Celebris 66MHz 486 PCs with OS/2 2.11. According to Nutter, these machines will eventually be upgraded to OS/2 Warp 3.0 if the county so chooses. PRC is already using OS/2 Warp 3.0 and IBM TCP/IP for development. This combination gives Fairfax county the tools it needs to weave a web of communications throughout the area.

The next stage is to replace the terminals in the police cars with computers and implement PRC's Altaris computer-aided dispatching system. Here, the county's new OS/2 workstations are ahead of the game. PRC has already added much of the support which is needed for the next step, to today's computers.

Ultimately, however, it's the ability to support reliable communications that matters most. As important as the user interface is, it's incidental compared to the need for quick and efficient response to emergency calls. Fairfax county and the other cities and counties that use PRC's software require reliability above all else.

Reliability and stability in a rich communications environment are two major reasons why PRC chose OS/2—and they haven't been disappointed. "So far, OS/2 has been super," according to PRC project manager Scott Milligan. Both Milligan and Nutter note that they've had very few problems integrating OS/2 for emergency uses. And, of course, communications are vital. Without the ability to share information between the DEC server and OS/2, the dispatching team could never do their jobs.

Wayne Rash, Jr. is a Contributing Editor and columnist for Communications Week. He's based in Washington DC and edits technology sections for The Washington Post. He can be reached at rash@access.digex.net or CompuServe 72205,221.

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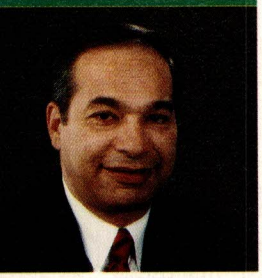

Build it Your Way

CREATING PROGRAM OBJECTS IN REXX

BY DICK GORAN

More and more frequently, OS/2 users are asking how to set up program objects on their OS/2 Desktops, or in other folders, to launch Windows and DOS applications seamlessly. With seamless program objects, non-OS/2 applications have the look and feel of OS/2 objects (until they are actually started). More importantly, setting each Windows or DOS program up as its own program object allows you to customize the settings for that particular program.

When considering the settings for the Virtual DOS Machine (VDM), two things should be taken into consideration: any overall Win-OS/2 defaults that you want to establish for your own system and any specific characteristics that you want to set up for a specific VDM. OS/2 Warp attempts to do **Add Programs** facility by creating folders that contain program objects for every DOS, Windows, and OS/2 application on your system that it thinks it can identify. If the **Search for** and **Select Programs** option is chosen, network drives are also searched. This approach works, to a point, but it can lead to a very messy situation, particularly if you have many Windows programs that you installed on your system on a trial basis and then deleted from your Windows Program Manager without deleting the actual files. A more practical approach might be to write a REXX program that will create these program objects and include just the Windows programs that you are actively using.

The specific setup strings that the original program provider recommended, or that IBM felt were best, can be taken from the *\os2\install\database.txt* file on your system. This file lists the majority of Windows applications and, for the most part, they are valid. The structure of *database.txt* is also included in all OS/2 Warp 3.0 systems in the file *\os2\install\dbtags.dat*. You will recognize most of the values in *database.txt* as the majority of the lines for a given program correspond to the SETTINGS values that you can adjust by opening the Settings Notebook for any DOS or Windows program object.

Every object you create should have an object ID—without an ID, only file system objects can be referenced . . .

A more practical approach would be to use your Windows Program Manager as the basis for creating these program objects. Now, only the programs that you have set up under Windows would have corresponding OS/2 program objects. Taking it a step further, if you create a folder that is the equivalent of your Windows Program Manager, folders could be created that mirror your Windows program groups. Within each program group, an OS/2 program object can exist that corresponds to the Windows or DOS program within the group folder. All of this can be done manually using drag-and-drop editing from the Folder and Program templates that are located in the Templates folders in the OS/2 System folder that is created on your Desktop when you install OS/2. Needless to say, that would be a very laborious task and would have to be repeated any time it becomes necessary to reinstall OS/2.

The same results could be achieved with a REXX program by using the **SysCreateObject()** function in REXXUTIL. This technique is used by the install portion of many of the OS/2 applications that are available today. Listing 1 shows an example for creating a Desktop folder named *Program Manager Desktop Equivalent*. (The sequence numbers which appear at the end of each REXX line are solely for convenient reference within this article.) We will create folders within this folder that will mirror their Windows Program Manager group counterparts. The techniques that are used in this example are applicable to OS/2 2.1 as well as OS/2 Warp 3.0, except that if you are using OS/2 2.1, you cannot specify that the contents of the folders are to be sorted. The sort capability did not become generally available until OS/2 Warp 3.0.

Every object you create should have an object ID. Without an ID, only file system objects can be referenced after the object is created. An object ID is any string of one or more characters that is preceded by a less-than sign (<) and followed by a greater-than sign (>). Each object ID within the system must be unique. Listing 1 uses '<Program Manager Desktop Equivalent>' as the object ID for the parent folder (line 11). At first glance, it might appear that the title that was given to this folder is the same as the object ID without the leading and trailing characters. Not so. While the alphabetic characters are the same,

Listing 1: Create Program Manager Desktop Equivalent

```
/*-------------------------------------------------------------*\                  /*01*/
|    9511LS01.CMD - Create Program Manager Desktop Equivalent   |                  /*02*/
\*-------------------------------------------------------------*/                  /*03*/
/* Assure that REXXUTIL is loaded */                                              /*04*/
call RxFuncAdd 'SysLoadFuncs', 'REXXUTIL', 'SysLoadFuncs'                         /*05*/
call SysLoadFuncs                                                                 /*06*/
                                                                                  /*07*/
/*---------------------------------*\                                            /*08*/
|  Initialization and Setup code    |                                            /*09*/
\*---------------------------------*/                                            /*10*/
GBL.desktop_object_id          =   "<Program Manager Desktop Equivalent>"         /*11*/
GBL.desktop_title              =   "Program Manager^Desktop Equivalent"           /*12*/
GBL.font                       =   "8.Helv"                                       /*13*/
                                                                                  /*14*/
/*-------------------------------------*\                                        /*15*/
|  The following value(s) can be changed |                                        /*16*/
|  to suit your personal taste.          |                                        /*17*/
\*-------------------------------------*/                                        /*18*/
GBL.icon_view    =  "FLOWED"    /* can be set to FLOWED   | NONGRID   */          /*19*/
GBL.sort_option  =  "YES"       /* can be set to YES      | NO        */          /*20*/
                                                                                  /*21*/
/*-------------------------------*\                                              /*22*/
|  Build Program Manager Desktop  |                                              /*23*/
|  Equivalent on OS/2 Desktop     |                                              /*24*/
\*-------------------------------*/                                              /*25*/
say COPIES( " ", 3 ) || "Building" GBL.desktop_title                              /*26*/
folder_class    = "WPFolder"                                                      /*27*/
folder_title    = GBL.desktop_title                                               /*28*/
folder_location = "<WP_DESKTOP>"                                                  /*29*/
folder_option   = "UPDATE"                                                        /*30*/
folder_setup    =,                                                                /*31*/
  "ALWAYSSORT="    || GBL.sort_option   || ";"          ||,                       /*32*/
  "ICONFONT="      || GBL.font          || ";"          ||,                       /*33*/
  "ICONVIEW="      || GBL.icon_view     || ",NORMAL;"   ||,                       /*34*/
  "OBJECTID=<Program Manager Desktop Equivalent>;"                                /*35*/
call SysCreateObject folder_class,,                                               /*36*/
                     folder_title,,                                               /*37*/
                     folder_location,,                                            /*38*/
                     folder_setup,,                                               /*39*/
                     folder_option                                                /*40*/
if RESULT <> 1 then                                                               /*41*/
  do                                                                              /*42*/
    say "   Unable to create " || folder_title                                    /*43*/
    say "      folder, program cancelled."                                        /*44*/
    exit                                                                          /*45*/
  end                                                                             /*46*/
```

the title has a caret (^) between the second and third words. This character will result in the folder's title being split into two lines—the caret indicating where the line break is to occur.

Each object we create must have a Workplace Shell class associated with it. Only two classes are required here—WPFolder and WPProgram. Each object will also be assigned a title, specify the location where the object is to be created, and have one or more setup strings associated with it. The setup strings are made up of a key word and its related value. Although many of the key word/value pairs that exist for WPS objects are documented in the on-line *.inf* files that come with OS/2, the only complete source for these setup string parameters is the *REXX Reference Summary Handbook*.

Listing 2: Create Group Folder Object

```
/*-------------------------------------*\                    /*01*/
|9511LS02.CMD  Create Group Folder Object  |                  /*02*/
\*-------------------------------------*/                    /*03*/
/*---------------------------------*\                        /*04*/
|Build Group folder for: Accessories  |                      /*05*/
\*---------------------------------*/                        /*06*/
say COPIES( " ", 6 ) || "Building Accessories folder."       /*07*/
folder_class    = "WPFolder"                                 /*08*/
folder_title    = "Accessories"                              /*09*/
folder_location = "<Program Manager Desktop Equivalent>"     /*10*/
folder_option   = "UPDATE"                                   /*11*/
folder_setup    =,                                           /*12*/
  "DETAILSFONT="   || GBL.font || ";"                 ||,    /*13*/
  "TREEVIEWFONT="  || GBL.font || ";"                 ||,    /*14*/
  "ICONFONT="      || GBL.font || ";"                 ||,    /*15*/
  "ICONVIEW="      || GBL.icon_view || ",NORMAL;"     ||,    /*16*/
  "ICONRESOURCE=72,PMWP;"                             ||,    /*17*/
  "ICONNRESOURCE=35,PMWP;"                            ||,    /*18*/
  "ALWAYSSORT="  || GBL.sort_option  || ";"           ||,    /*19*/
  "OBJECTID=<Accessories Group>;"                            /*20*/
call SysCreateObject folder_class,,                          /*21*/
                     folder_title,,                          /*22*/
                     folder_location,,                       /*23*/
                     folder_setup,,                          /*24*/
                     folder_option                           /*25*/
if RESULT <> 1 then                                          /*26*/
  do                                                         /*27*/
    say "   Unable to create " || folder_title ||            /*28*/
      "group folder."                                        /*29*/
    exit                                                     /*30*/
  end                                                        /*31*/
```

The **ALWAYSSORT=** string (line 32) did not become generally available until OS/2 Warp 3.0. Previously, it could only be used with DeskMan/2. It results in the objects within the folder always being displayed in order by the object's title. The example in Listing 1 also provides the flexibility of assigning FLOWED or NONGRID to a variable (line 19), so that a consistent format will be applied to each folder's icon view.

Listing 2 contains the instructions and setup string parameters that are needed to create a folder that is equivalent to the Windows Accessories group. It is similar to the Program Manager Desktop Equivalent folder, except that its location is the Program Manger Desktop Equivalent (line 10), which is indicated by using the object ID we assigned to the Program Manager Desktop Equivalent folder. Another difference is seen in the use of the **ICONRESOURCE=** (line 17) and **ICONNRESOURCE=** (line 18) setup strings—both of which specify the use of standard system icons embedded within the *pmwp.dll* file. The first key word/value pair indicates the icon that will be displayed when the folder is closed, while the second defines the icon that will be displayed for the folder when it is opened. Both parameters are optional with the folder will have the default yellow file folder icon associated with it if no alternative is specified. Custom icons can be specified with the **ICONFILE=** and **ICONNFILE=** parameters pointing to the desired icon files.

Listing 3 shows the REXX code that can be used to create two of the WPS program objects that are found in the Accessories group. As with the folder objects, program objects have setup string parameters that define the properties of the object. Program objects that are created for DOS and Windows programs allow you to specify the characteristics of the VDM that will contain the program when it is launched. Each of these VDM parameters begins with SET and is followed by a key word/value pair. Any values that are specified for the program object override the default **WIN-OS/2 Setup** values and any VDM values that are specified in the OS/2 *config.sys* file.

Column space limits the number of program objects I can show. A more complete listing, as well as machine-readable versions of the listings that are included in this article can be downloaded from Library 2 of the OS2AVEN forum on CompuServe, via anonymous ftp from *ftp.cfsrexx.com/mkwinos2*, or via the World Wide Web at *http://www.cfsrexx.com*.

The *mkwinrun.txt* file contains a complete REXX program that shows multiple program group folders and program objects. A commercial product, MKWINOS2, creates all of the group folders and their respective program objects for Windows Program Manager. MKWINOS2 can be used free of charge to build the Program Manager Desktop Equivalent folder and all other group folders for your system. This program will create the program objects for all the programs contained in the Accessories, Main, and Startup groups. If you want to create your own program objects for the remaining program objects on your system, it is not necessary to obtain a key to unlock the program. However, if you want MKWINOS2 to build all of the program objects for your system, you must purchase an enabling key. The file *mkwinos2.zip* can be downloaded from CompuServe in Library 1 of the OS2AVEN forum, via anonymous ftp from *ftp.cfsrexx.com/mkwinos2/mkwinos2.zip* or via the World Wide Web at *http://www.cfsrexx.com*.

Listing 3: Create Accessories Program Objects

```
/*-----------------------------------------------*\                    /*01*/
|9511LS03.CMD  Create Accessories Program Objects |                    /*02*/
\*-----------------------------------------------*/                    /*03*/
/*---------------------------------*\                                  /*04*/
|  Build WPProgram object for: Write |                                 /*05*/
\*---------------------------------*/                                  /*06*/
program_class    = "WPProgram"                                         /*07*/
program_title    = "Write"                                             /*08*/
program_location= "<Accessories Group>"                                /*09*/
program_option   = "UPDATE"                                            /*10*/
program_setup    =,                                                    /*11*/
  "EXENAME=C:\WINDOWS\WRITE.EXE;"                          ||,         /*12*/
  "STARTUPDIR=C:\WINDOWS;"                                 ||,         /*13*/
  "SET DPMI_MEMORY_LIMIT=64;"                              ||,         /*14*/
  "SET IDLE_SECONDS=3;"                                    ||,         /*15*/
  "SET KBD_ALTHOME_BYPASS=1;"                              ||,         /*16*/
  "SET VIDEO_SWITCH_NOTIFICATION=1;"                       ||,         /*17*/
  "SET WIN_ATM=1;"                                         ||,         /*18*/
  "SET WIN_CLIPBOARD=1;"                                   ||,         /*19*/
  "SET WIN_DDE=1;"                                         ||,         /*20*/
  "SET XMS_MEMORY_LIMIT=16384;"                            ||,         /*21*/
  "OBJECTID=<Write>;"                                                  /*22*/
call SysCreateObject program_class,,                                   /*23*/
                     program_title,,                                   /*24*/
                     program_location,,                                /*25*/
                     program_setup,,                                   /*26*/
                     program_option                                    /*27*/
if RESULT <> 1 then                                                    /*28*/
  do                                                                   /*29*/
    say "   Unable to create " || program_title ||,                    /*30*/
        " program object,"                                             /*31*/
    exit                                                               /*32*/
  end                                                                  /*33*/
                                                                       /*34*/
/*---------------------------------------*\                            /*35*/
|  Build WPProgram object for: Media Player  |                         /*36*/
\*---------------------------------------*/                            /*37*/
program_class       = "WPProgram"                                      /*38*/
program_title       = "Media Player"                                   /*39*/
program_location    = "<Accessories Group>"                            /*40*/
program_option      = "UPDATE"                                         /*41*/
program_setup       =,                                                 /*42*/
  "EXENAME=C:\WINDOWS\MPLAYER.EXE;"                        ||,         /*43*/
  "STARTUPDIR=C:\WINDOWS;"                                 ||,         /*44*/
  "SET DPMI_MEMORY_LIMIT=64;"                              ||,         /*45*/
  "SET EMS_MEMORY_LIMIT=0;"                                ||,         /*46*/
  "SET IDLE_SECONDS=3;"                                    ||,         /*47*/
  "SET INT_DURING_IO=1;"                                   ||,         /*48*/
  "SET KBD_ALTHOME_BYPASS=1;"                              ||,         /*49*/
  "SET MOUSE_EXCLUSIVE_ACCESS=0;"                          ||,         /*50*/
  "SET VIDEO_8514A_XGA_IOTRAP=0;"                          ||,         /*51*/
  "SET VIDEO_RETRACE_EMULATION=1;"                         ||,         /*52*/
  "SET VIDEO_SWITCH_NOTIFICATION=1;"                       ||,         /*53*/
  "SET WIN_ATM=1;"                                         ||,         /*54*/
  "SET WIN_CLIPBOARD=1;"                                   ||,         /*55*/
  "SET WIN_DDE=1;"                                         ||,         /*56*/
"SET XMS_MEMORY_LIMIT=16384;"                              ||,         /*57*/
```

```
"OBJECTID=<Media Player>;"                                          /*58*/
call SysCreateObject program_class,,                                /*59*/
                     program_title,,                                /*60*/
                     program_location,,                             /*61*/
                     program_setup,,                                /*62*/
                     program_option                                 /*63*/
if RESULT <> 1 then                                                 /*64*/
  do                                                                /*65*/
    say "   Unable to create " || program_title ||,                 /*66*/
        " program object,"                                          /*67*/
    exit                                                            /*68*/
end                                                                 /*69*/
```

Dick Goran is the author of the REXX Reference Summary Handbook, an OS/2 reference. He has been in the computer industry since 1961 and was in the IBM mainframe systems software development business until 1987. He teaches OS/2 REXX to corporate clients and lectures on OS/2. His free REXX utility programs can be downloaded from OS2DF1, Lib 6 on CompuServe or FTPed from ftp://ftp.cfsrexx.com/pub. He can be reached via E-mail at 71154.2002@compuserve.com.

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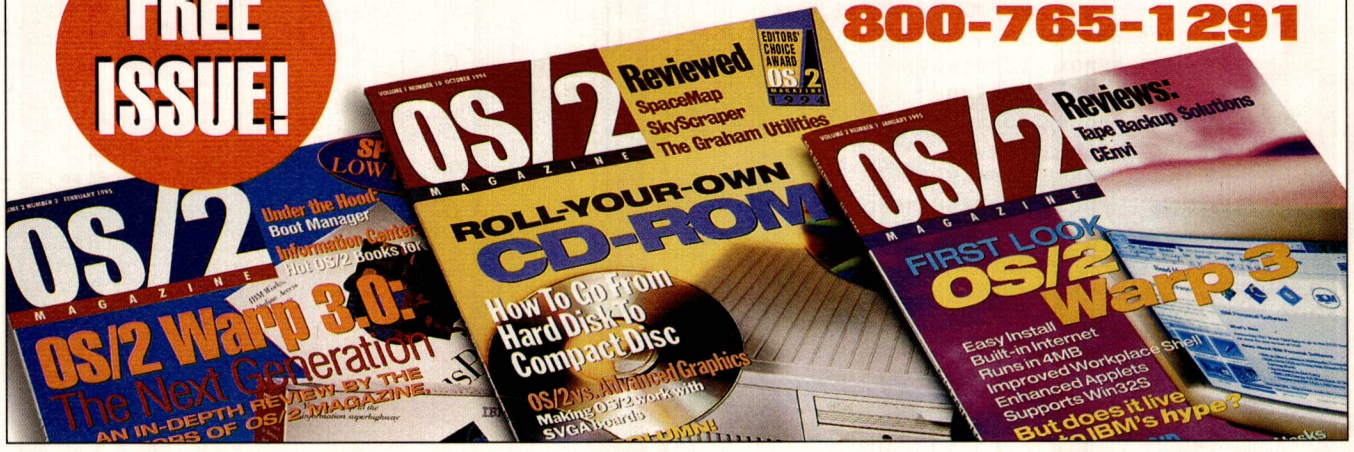
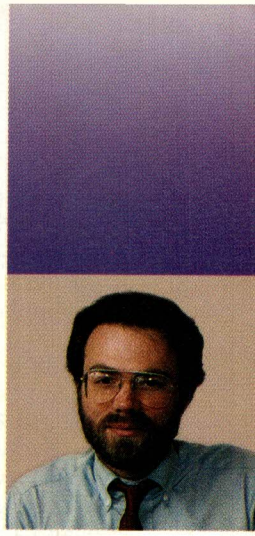




An inside look at HPFS

HOW MANY SECONDS ARE YOU FROM JANUARY 1, 1970?

BY MARK MINASI

Over the years, not much information has been released about HPFS's internal structure. This month, let's take a look at what we do know about organizing disks using HPFS.

The more popular FAT file system is built around several disk structures that include the boot record, the file allocation table itself, the root directory, and a data area. HPFS is organized differently.

An HPFS disk first has a boot area with disk ID information, which is 16 sectors long. The next sector is called the *Superblock* and contains 32-bit pointers to major system areas, including the root directory, a map of free space on the disk, a list of bad areas on disk, as well as other system information, such as, the last time **chkdsk/f** ran on the disk.

The sector after the Superblock is called the *Spareblock*, which contains other system information. After the Spareblock starts the data bands, groups of sectors hold most of the data on an HPFS volume. Data bands are areas that hold files and most of the file organization information. The areas outside the data bands are the free space bitmaps, which will be explained in this column.

The minimum disk-space allocation unit is no longer the cluster, but instead areas for logical disks that are smaller than 256MB. I'll use a single sector as the example for the remainder of my description. Remember that, under the FAT system, the minimum file size was 2K—a cluster's size. Under HPFS, it's 512K—a sector's size. Disks are divided into 8MB data bands, which are composed of 512K sectors, regardless of disk size.

Immediately following data band 1 are four sectors (2K) that include a bitmap that describes the free space. For each sector in data band 1, is a bit in this bitmap area. If the bit equals one, the sector is occupied, if it's free, it equals zero. This method partially replaces FAT's file allocation table, as a bit indicates whether a sector is free or not. It does not, however, replace the part of the FAT that tells you which file that sector is owned by. That information is contained within a structure called the *fnode*.

Immediately after the free space bitmap for data band 1 is the free space bitmap for data band 2. Data bands 2 and 3 are next to each other, allowing a single file as large as 16MB in length contiguously. Thereafter, pairs of free space bitmaps are wedged between pairs of data bands.

Now, let's take a look at how HPFS keeps track of files. The FAT file system is dependent on some large complex fixed-size structures—the FAT itself and the directory. HPFS, in contrast, is built out of one-sector structures that are called fnodes. Fnodes (pronounced eff nodes) are distinct sectors that contain basic information about a file or directory. When I say distinct, I mean, for example, that a 100-sector file would actually take up 101 sectors on a disk (100 sectors for its data and one sector for its fnode). Fnodes can take several forms, depending on how large a file is and how many extended attributes (EAs) it has, but basically they tell you where a file is and describe its EAs. Not only files contain fnodes, directories have them as well.

The FAT file system uses a pointer from the directory to find the FAT, which leads, in turn, to other FAT pointers, all of which together describe what clusters the file occupies. Under HPFS, it's a mite more complex, the net effect being faster file access. This topic is best explained with an example (to make it simpler, I will assume that all files are contained in the root directory of the disk).

To find a fairly contiguous file in the root directory, HPFS does the following:

- Looks in the Superblock at byte offset 12 for a four-byte value that points to the fnode for the root directory. That four-byte value is a sector offset. That means, if the value is 700, the item we're looking for is in the 701st sector on the partition. It is 701st, because we start counting from 0. The first sector is numbered 0, the second is numbered 1, and so on. So, when the Superblock indicates that the root directory's fnode is in sector number 700, it means it's the 701st.
- Next, use the Superblock pointer to find the fnode for the root directory. The 72nd byte in the fnode of the root directory contains a four-byte pointer to the root directory. My root ended up near the end of the first data band.
- Now, use that 72nd byte in the root directory's fnode to find the sector that contains the root directory. The root directory is allocated four sectors—as are all directories. Because the file names can be as large as 255 characters within the sectors, directory entries are variable in length. It appears that each directory entry consists of 31 bytes and a file name. The directory ends with a dummy record. Four of those 31 bytes point to an fnode that points to the file for which you're looking. The file gets an fnode, just as the root directory did.
- Use the fnode pointer in the directory to find the fnode for the file in describes the space that the file uses in one of two ways. The more com-

mon of the two ways describes a file's location through the use of sector runs—eight-byte structures that consist of a four-byte run length and a starting sector offset. If the file exists from sectors 100 to 106 and 200 to 201, it is in two sector runs—a seven-sector run starting in sector 100, and a two-sector run starting in sector 200. There's room for eight of these sector runs, so any file that's fairly contiguous (eight fragments or less) will fit nicely into this scheme. Partial fnode contents hold a partial fnode, illustrating the eight -sector runs for this file. For the pathologically fragmented files, HPFS also allows an fnode to simply point out up to 12 allocation sectors, each of which can contain 40 sector runs of their own. If you want more, HPFS can have the allocation sectors contain not sector runs, but more pointers to allocation sectors, and so on.

Table 1: HPFS Directory Structure.

Offset	Size	Description
0	4	Length of this file directory
4	4	Pointer to file's fnode
8	4	Date of last modification
12	4	Size of bytes
16	4	Date last read
20	4	Date created
24	6	Reserved
30	1	Length of file name
31	1-255	File name

- Finally, use the sector runs to find the file itself.

An illustration of these steps is shown in Figure 1.

What about fnodes? What do we know about them? Well, an fnode has a somewhat malleable internal structure, but the basics can be explained as follows. At an fnode's beginning, there's a pointer, which points back to the parent structure. If one fnode is pointed to by another, the pointer goes back to the parent fnode. If the fnode was pointed to by the Superblock, the fnode's pointer returns to the Superblock.

Why is that important? Because of fault tolerance. In the FAT file system, all pointers are one-way pointers. If you lose one,you can't reconstruct a directory structure without guessing. Pointers forward and backward allow you to simply and reliably rebuild a damaged pointer.

After the pointer, the first 15 bytes of the file or directory name appear. It is fault tolerant and speeds things up. Following that are up to eight sector runs. For example, if a file existed in sector 200 to 202 and 500 to 505, the runs would appear as 3, 200 and 6, 500, respectively, because the runs are organized as length of run, then first sector of run. That leaves a few-hundred bytes for storage of the extended attributes—if there aren't many bytes of extended attributes. If a great deal of extended attributes does exist, you can store up to 64K of them under HPFS, in an area that has a pointer that runs to another sector that contains the extended attributes.

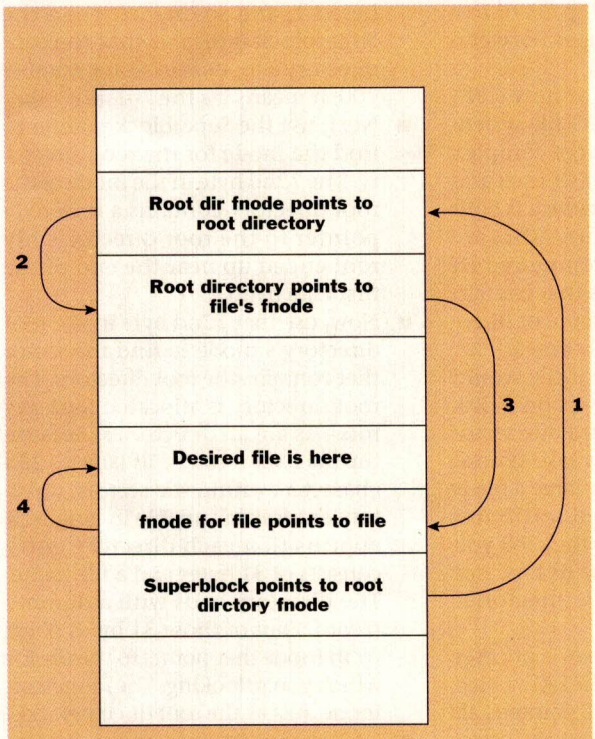


Figure 1: How HPFS finds files in the root directory.

HPFS directory structure

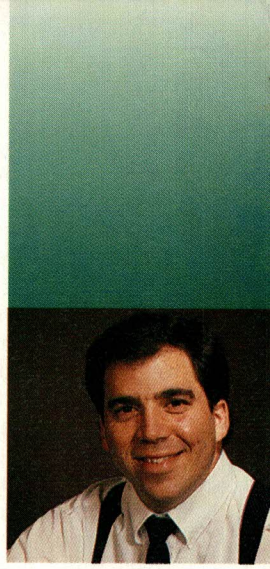
Finally, let's look at HPFS directory sectors. (This subject has not been documented, so I have done some guesswork with the aid of the Norton Utilities.) First, the directory sector contains 56 bytes of some kind of preamble. Then, the 31 bytes preceding each file's name is shown in table 1.

The directory is completed with a dummy record that contains zeros in all locations until the length field, which equals one, and file name, which is just hex *ff*.

The new dates (date last read and date last modified) have the potential to be extremely useful. But dates under HPFS are different than under FAT. FAT gurus know that directory dates and times are expressed so that the first two bytes are the time and the last two are the date. Under HPFS, it's just a single four-byte entry that represents seconds since 1-1-1970. Why the new format? It simplifies the task of doing date arithmetic. If all dates are "seconds since January 1, 1970," you can calculate differences between dates by subtracting one from another.

You knew that HPFS was superior to FAT. Now you know some of the under-the-hood reasons why. It's too bad they don't make a Norton DiskEditor for HPFS, at least not yet....

Mark Minasi has been a consultant and educator in the fields of advanced PC operating platforms and PC technology since 1984. He is a contributing editor for Compute, BYTE, and OS/2 Magazine. You can contact him at CompuServe 71571,264 or Internet mark@smtphost.mmco.com.



Settings And Stuff

DOING IT DOUBLE-SIDED, VME, LONG NAMES, AND MORE ...

BY DAVID REICH

SETTINGS FROM REXX

In May (p.67), I addressed starting applications using specific session settings from REXX. After it was published, I exchanged notes with a user on specifying the **WIN_RUN_MODE** setting from REXX. After some sleuthing, he found a very creative solution that not only solved all the problems he was having, but did so with only one setting for the session type (Win-OS/2 window or full screen), as well as the **WIN_RUN_MODE**. Unfortunately, I can't mention his name, because it was not on his return e-mail, but I will describe the solution.

With this method you can set the **WIN_RUN_MODE** as well as the type of session in which the Windows application will run. **SysCreateObject** is used, although **SysSetObjectData** would work as well, if you know the object name.

Simply set the PROGTYPE to one of the values shown in Fragment 1.

HARDCARD

Q: I recently installed OS/2 on my 486. Everything works except I can't access my Quantum HardCard. I followed the instructions in the readme file and I've spoken to Quantum a couple of times—they even sent me the latest and greatest BIOS upgrade, but it still does not work. The operating system simply doesn't recognize the drive. Did I miss something?

You can set the WIN_RUN_MODE, as well as the type of session in which the Windows application will run.

A: You might be missing the appropriate hardware settings for the HardCard in *config.sys*. The default IRQ setting for the Quantum HardCard is IRQ 11. You should ensure that you have the line in your *config.sys* file that is shown in Fragment 2. This line will ensure that the driver looks at IRQ 11, where the HardCard is set.

Fragment 2:

```
BASEDEV=IBM1S506.ADD /V /A:1 /IRQ:11
```

DEFAULT PRINTING

Q: I'm having trouble printing a plain-text file on a network printer in duplex mode. My job properties for the printer driver are set for two-sided print. I drag and drop the file onto the printer icon, a dialog box pops up, and I select plain text. The document prints in duplex mode, but the text is not aligned. Is it using a proportional font? If I select Printer Specific, the text is aligned, but it doesn't print in duplex mode. How can I print aligned documents in duplex mode?

A: What you are seeing is a mixture of defaults and settings that get used in different circumstances. It is not a trivial task to print aligned duplex documents. Let me explain: When you select Plain Text, the system creates a presentation space, which is a device-independent draw-

Fragment 1:

```
PROG_31_ENH  --> full screen enhanced mode session
PROG_31_STD  --> full screen standard mode session
PROG_31_ENHSEAMLESSCOMMON  --> seamless common enhanced mode session
PROG_31_STDSEAMLESSCOMMON  --> seamless common standard mode session
PROG_31_ENHSEAMLESSVDM  --> seamless separate enhanced mode session
PROG_31_STDSEAMLESSVDM  --> seamless separate standard mode session
```

ing space for the system and applications. It creates a device context, which is where the device translation takes place. In your case, it is a printer device context (to draw on the screen, a presentation space must be associated with a screen device context). Because it is a plain-text print, the file contains no specific font information, as might exist with a graphical word processor, such as DeScribe. As a result, the system will choose a default font. The application that is printing in a presentation space print, chooses the font. In this case, that application is the system, or more specifically, the Workplace Shell.

Because you have set the printer defaults to two-sided, and because it is a presentation space print that uses a printer device context (the printer driver, in this case), these settings take effect and your document prints in duplex. Now, look at the Printer Specific printing you are trying. It tells the system to ignore everything about presentation spaces and device contexts and send the file directly to the printer spooler. This action bypasses all translation and the device independence that presentation spaces provide. It also bypasses the translation that is done by the printer driver and ignores your settings (such as two-sided). In essence, with printer-specific drag-and-drop printing you tell the system that the file is more than just the data to be printed, it is a printer data stream, therefore, any and all translation is bypassed.

To get the data file to print duplex aligned text, add font information to the text file. When you do so, use the printer-specific push button. You will have a truly printer specific file.

MODE ON START

Q: In an exchange of e-mail, you made some suggestions as to how to get my Win-OS/2 sessions to print correctly to my HP LaserJet that is connected by COM1. After much mucking around, I discovered that if I run the mode command on COM1 and change the default settings of 1200,7,e,1 to 9600,N,8,1, the printing functions under a Win-OS/2 session. So, how do I change the default settings for COM1 when I boot the machine, so I don't have to go to an OS/2 command line to run the mode command each time? There must be some way to change it in the *config.sys*. I tried adding start mode com1:96,N,8,1 and run=mode com1:96,N,8,1, but neither worked.

A: You need something analogous to an *autoexec.bat* file under DOS, but that runs only once upon system start. The easiest method is to create a command file named *startup.cmd* in the root directory, and type the following line in it:

```
MODE COM1 9600,N,8,1
EXIT
```

Save this file. It will run once upon system start. You could also create a command file with the same two lines, named *fixprt.cmd*. You would then need to create a program reference object that points to that file and puts it in the Startup folder. The objects in the Startup folder are, as the name implies, started upon system boot. To create the program reference object, you can use the right mouse button to drag a Program template from the Templates folder to the Startup folder and fill in the path and file name for *fixprt.cmd*. You can then pull up the context menu of another program reference object with the right mouse button and, using the left mouse button, select Create Another and fill in the values. Make sure that you click on the checkbox Close Window on Exit on the Session page. You should also make sure to click on the OS/2 Window checkbox, so it runs in a window, as opposed to a full-screen session.

VME

Q: I recently added VME=NO to my *config.sys*, which has eliminated many Trap Errors. In addition, the system is much more stable—I am typing this letter to you while using Sytos with a Colorado Jumbo 250, downloading mail from the Internet, making Works disks in an OS/2 window, and printing a file with our serial printer network. What is VME?

A: VME is short for Virtual Mode Extensions, which is special code that some 80486 chips contain. It used to be present only in some enhanced 486 chips, but a while back, Intel began putting it in all of the 486 chips. VMEs are extensions that allow more efficient virtual mode (DOS mode) operation when running a protected-mode operating system, such as OS/2.

Over time, a number of problems with VME have been uncovered—both in the chips and their documentation, as well as in OS/2's architecture and use of VME. IBM is working to fix these problems as they appear, and has rewritten much of the VME code in OS/2. However, some aspects of VME remain buggy or undiscovered. IBM added a switch to *config.sys*, which you have discovered.

When you set **VME=NO** in *config.sys*, it turns off all VME extension enabling in the system and uses the older code, which is not quite as fast. You should add this line to *config.sys* if you have unexplained problems running DOS programs or DOS device drivers in specific VDM sessions. If turning off VME fixes your problems, you should tell IBM. Shutting down VME is a bit drastic, but if it keeps your system running until the fix is available, the switch accomplished its goal.

XDF YOUR DISKS

Q: I am trying to make a backup of my OS/2 Warp 3.0 disks and having a problem. Most are in the 1.8MB format, which I heard is a special format for OS/2, I don't know how to format disks to this capacity. Whenever I format an already formatted 1. 44MB disk with OS/2, it only formats to 1.44MB, not 1.8MB.

A: This 1.8MB-per-disk format is called XDF and was introduced in OS/2 Warp to reduce the number of disks that are used to install the system. All of the OS/2 system disks, except for the install disk and disk number 1, are formatted with XDF. The standard **format** program will not format disks to 1.8MB, and in general, you cannot write to these disks at all. XDF gives you higher capacity disks for archiving your sys-

tem disks—you don't need to format your disks to backup the system disks. You can find a program called **xdfcopy** in your */os2* directory that formats as it copies. It has essentially the same syntax as **diskcopy** so for example, **xdfcopy a: b:** will copy your system disk from your *a:* drive to your *b:* drive (Note that **diskcopy** does not work on 1.8MB disks.)

MORE FILES

Q: I have just installed Reuters Money Network in Win-OS/2. The readme file tells me that I need Files=100 in my *config.sys*. Couldn't I simply just right-click on the Win-OS/2 ProgMan Icon, select the DOS Settings in the Settings Notebook, and make DOS_FILES=100? Is that the same thing, or am I misunderstanding something?

A: You're not missing anything, and, in fact, you've hit the nail on the head. You've pointed out exactly how the DOS settings are supposed to work. Many DOS/Win programs instruct you to make changes in *config.sys*. In the DOS/Win world, these changes will be in effect for every program that runs in the system. After a while, you will probably have programs that conflict in what they need from *config.sys*. The DOS Settings for each session (VDM in OS/2) were designed to give you the freedom to individualize settings for each stand-alone application. In this case, the DOS_FILES setting corresponds to the FILES statement in a DOS *config.sys* file.

<ALT+F1> CONFIGS

Q: In March (p. 67) you wrote about customizing the <Alt+F1> operation. I have a user who has two separate offices. I want to set up his Compaq notebook (it runs OS/2 Warp) so that he can use a Compaq docking station in one location and a Compaq Enhanced Quick Connect in the other location. I found that switching the *config.sys*, as you described, worked just fine. However, I also need to switch *net.cfg* files, because the docking station and the quick connect use different drivers. I was able to create an *altf1?.cmd* file that copies a *net.aaa* to *net.cfg* and modifies the *altf1bot.scr* file, as you described. When rebooting, <Alt+F1> is pressed and the selection is made to switch the *net.cfg* file. Unfortunately, it makes the switch after completing the *config.sys*, which doesn't do any good. Do you have any suggestions?

A: If you look carefully, you can see that an *altf1?.cmd* also allows you to use a *config.?*, where the ? matches the ? in the command file name and the *config.?* name. If you type that character, you cause the system to use a customized *config.sys*. Instead of switching *net.cfg* files, you can create different *config.sys* files. From now on, keep each of the network configuration files in different places and point to them from the *config.sys*.

EAs AND EDITORS

Q: I run OS/2 on a FAT partition. If I use the Enhanced Editor to create a file, file names that are longer than 8.3 are impossible within Save dialog boxes. However, if I open the Drives folder and rename the file using the Settings Notebook, I'm able to use long file names.

When I tried to open that document again with Enhanced Editor to modify and save it, the long file name stays the same, except that it is truncated in the dialog box. When I tried again with a DOS editor, the original long file name disappeared. Can you explain why OS/2 behaves that way on a FAT?

A: What you've encountered is a seemingly illogical behavior in long files names, FAT drives, and the Enhanced Editor. It actually makes a great deal of sense when you examine how Extended Attributes (EAs) work, and how applications interact with them.

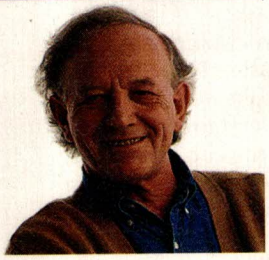
First, you might wonder what EAs have to do with your problem. Your question actually refers to a problem with the application you use to manipulate the file and its name. The editor you're using evidently does not create long file names on FAT drives, but it is not an impossible task.

The application can create a file with the file Application Programming Interfaces (APIs). To create a file with a long name, or understand how long names are implemented on FAT drives, give it an 8.3 name and put the long name in a .Longname EA. This way, long file names are implemented in FAT drives. The editor you are using simply chooses not to support this function. (By the way, for you programmers out there, stick with the APIs and don't try to create your own .Longname attribute.)

As you have seen, the Drives object (the file system interface of preference) will create long names on FAT drives and store the long name in the EA of the file. If you run a dir on one of these files, you will see the first 8.3 characters of the name. An EA contains the rest—if you had an EA editor, you could look at the .Longname EA. Once the Drives object, or any application that uses the file system APIs puts a long file name in an EA, the editor will see and preserve it. However, the editor has not been programmed to create long file names. It is what is known as a long name-aware program. Although it will not create them, it will preserve them.

On the other hand, DOS knows nothing about long file names or EAs, and most DOS editors save a file by first deleting and then recreating it. Because they do not recognize long file names or EAs, DOS editors will usually ruin the long file names and other EAs. It's worth noting that a DOS editor that runs under OS/2 can have the long name preserved by the OS/2 file system—if the editor does not issue a file delete and a file create. However, if you use this FAT drive when booted under DOS, it is more likely to destroy the long name.

David Reich, a contributing editor to OS/2 Magazine and author of Designing High-Performance OS/2 Warp Applications (John Wiley & Sons), has been with the OS/2 development team since 1987. David is interested in your questions and suggestions. Contact him at CompuServe 76711,632 or Internet speedracer@bocaraton.ibm.com.



Surfing The Print

OS/2 WARP INTERNET CONNECTION

BY STAN KELLY-BOOTLE

There *is* something growing faster than the Internet—the torrent of Internet books. A few months ago, the *L.A. Times* estimated the number of Internet-related titles at "over 900." As is the case with most published statistics, we nod our approval or recoil in horror, but we lack the will or the means to verify such claims. What I can say for certain, and with sufficient precision for my present purposes, is that Internet books are available by the cartload, at least 3.71 copies for each Internet user. It is a strange phenomenon: acres of on-page hard copy that extols the virtues of on-screen electronic information. You might also encounter the amusing catch-22, whereby you are invited to download elementary Internet tutorials with an anonymous ftp (which is rather like the BBS that offers help if your modem doesn't work, or the advert that says "To ameliorate your illiteracy, phone ABC-DEFG").

Most of the Internet books start in panegyric mode with altar calls to the new, life-changing dawn of global communications. It's only "one click away," they tell you, but here are a few things you need to know and do before the button works. The more general books face a problem in these early, essential chapters that are aimed at getting you connected to the net. The phrase "it all depends" crops up regularly with regard to your system, your OS, your available providers, the services you need, your credit-card limit, and so on. You often find the dreaded "ask your nearest guru" suggestion and the casual request that always chills my bones, "Consult your modem manual." I have planned a protracted *auto-da-fé* for all authors who tell me to consult my modem manual. At any one time, my *écurie* sports six installed modems of distinct but dimly remembered types that have no immediately locatable manuals, while prominent on my shelf is the manual for a long-lost 1970-vintage acoustic coupler. It's clearly time to go for the Windows 95 spy register and let Bill Gates decide which modems I'm using.

Even with Internet books that are dedicated to specific topics and platforms, such as the Windows-only (but otherwise excellent) *Netscape & HTML Explorer* by Urban A. LeJeune and Jeff Duntemann (Coriolis Group Books), you encounter "I can't explain how to do this [getting on the Web], because there are as many ways to go as there are providers."

What should OS/2 users look for among this glut of Internet literature? Well, you might already have all you need. When IBM bundled Internet Connection with the OS/2 Warp Bonus Pack, the leading OS/2 encyclopedias and bibles (see August 1995, p.72) were all enlarged with new Internet chapters. I should add that *OS/2 Warp Unleashed, Deluxe Edition* by David Moskowitz, et al. (Sams Publishing) deserves special praise for its comprehensive Internet coverage. However, if you want a self-contained text that is dedicated to OS/2 and the Internet, the choice is clear: *OS/2 Warp Internet Connection—Your Key to Cruising the Internet and the World Wide Web* by Deborah Morrison (the editor-in-chief of IBM's TCP/IP Connection). You will search in vain for the OS/2-accredited logo! But, fear not, the imprimatur transcends such accreditation. The book is from IBM Press, and you can't get more official than that. You can get equally official, of course, with the IBM manuals and help screens. And therein lie my only reservations over this work. Apart from the cheerful, chatty introductory message from "the team that created the Internet Connection for OS/2 Warp," the writing seems to plod along, fact by undisputable fact, in a style I dub "manualese." God forbid we should go to the other extreme of computer-book exposition—"Gee, that wasn't so difficult, was it?" It's just that the delivery needs more sparkle and variation to hold one's interest. Further, and this applies equally to books from Microsoft Press, one wonders if official guides will be as up-front as independent publications when discussing possible snags and bugs. I should stress that the book contains much useful material that I have not encountered elsewhere. For example, the sample login scripts for connecting to various providers and the included disk, which provides 10 useful Internet utilities, are well worth the $24.99 asking price.

I leave you with this tiny irony: The designated publisher for IBM Press is IDG, purveyors of books for the baffled, including the one book that OS/2 users should avoid: *Internet for Dummies* by John R. Levine & Carol Baroudi (IDG Books). If you are not using DOS, Windows, or UNIX, *Internet for Dummies* leads you to a chapter called "Starting Off, for Everyone Else," which assumes that you must be using Macintosh OS or VMS! Not a whisper about OS/2 or the OS/2 Warp Internet Connection.

RESOURCES

OS/2 Warp Internet Connection—Your Key to Cruising the Internet and the World Wide Web
($24.99, including 3½" disk)
by Deborah Morrison
IDG Books
READER SERVICE NO. 190

Stan Kelly-Bootle started computing on EDSAC I at Cambridge more than 40 years ago and has written at least 11 books. His "Devil's Advocate" column in UNIX Review has been running since 1984. His latest book is The Computer Contradictionary (MIT Press, 1995). He welcomes e-mail via CompuServe 70323,1560, Internet skb@crl.com, or S.KBOOTLE on AppleLink.

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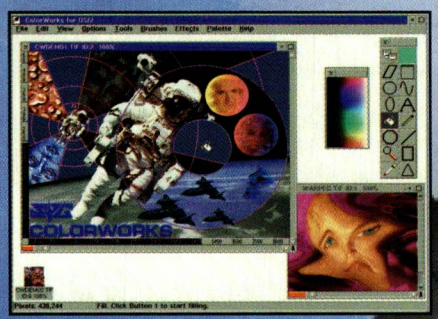

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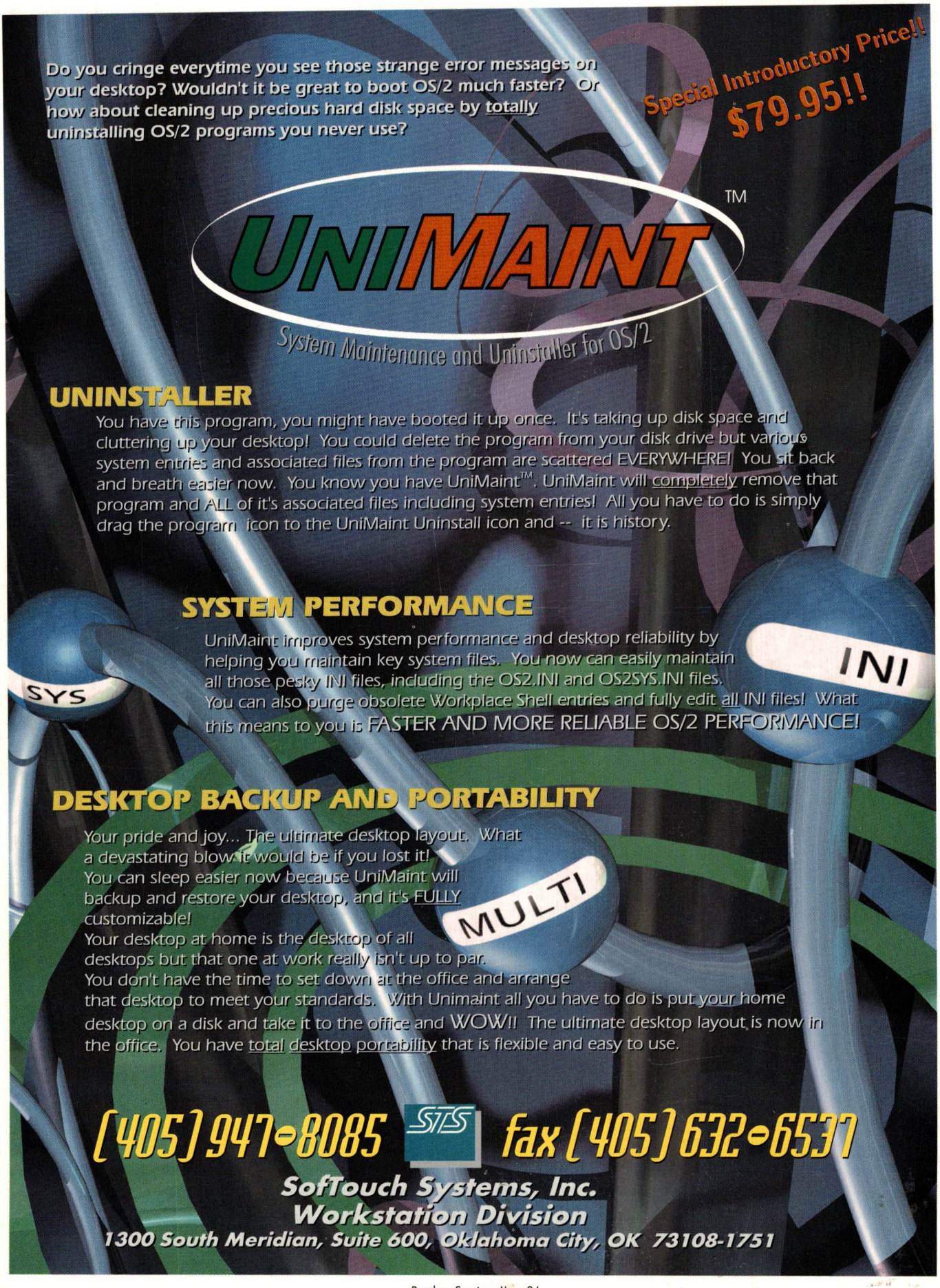
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